

CONSERVATIONIST

JULY/AUGUST 2001

DEPARTMENT OF NATURAL RESOURCES



FROM THE DIRECTOR

The Choices Are Tough, But You Can't Make A Mistake



Lowell Washburn

You owe it to yourself to play outside more often this summer.

What to do? That's the hard part because you have so many choices. No matter where, no matter what, you can't make a mistake. Alone, or with family or friends, the plate of offerings from Iowa's outdoors is simply remarkable. (Check out www.state.ia.us/dnr as your major reference source.)

For example, by fishing at a state park, you can pack more fun AND relaxation into an afternoon, or several days, close to home, at less expense than just about any outing imaginable. With a fillet knife, and a frying pan, you can sizzle your catch over an open fire while the sun

sinks on a memorable horizon. If you tire of angling, then venture on a timber-lined hike. Take a bird or tree ID guide and boost your natural knowledge. Read a book by a lantern or read constellations.

What a great place for a family meeting to make resolutions and iron out a problem or two.

How about a lazy day of floating a nearby stream with a canoe or small flatbottom. You can rent, borrow or buy a vessel. Chances are,

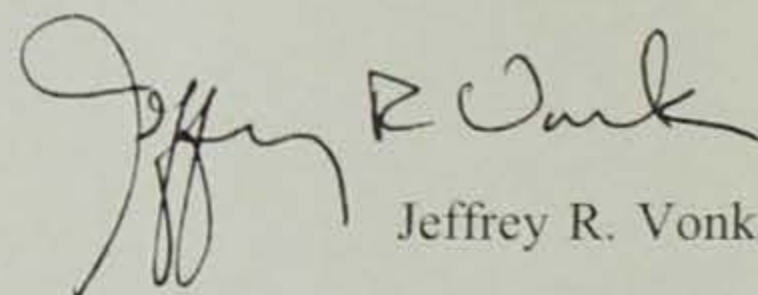
do it once and you'll want your own. Put-in and take-out sites abound. Pack a cooler with snacks and beverages, then go with the flow to discover the quiet, cool and up-close scenery of stream life. Wet a line for a channel cat near a snag of fallen trees if the going is slow. I'll almost guarantee that if your float experience is like most, you will become a better steward of our natural resources. You almost cannot help from wanting to enhance and protect a waterway you so much enjoy.

Livelier pursuits? You want action? We've got that, too, in Iowa's bigger waters. The Great Lakes and the other natural lakes of northern Iowa, the Corps of

Engineers reservoirs or the Mississippi give you space for skiing and speed boat touring. Interrupt your wave bouncing with a quiet swim at a beach, or a shoreline hike for driftwood, arrowheads or fossils. At some lakes you even can pull into a restaurant for wave-side dining. Near most of the big waters and well-scattered beyond them, you can find a bike trail to generate some huffing and puffing through captivating landscapes. Many are surfaced well enough to roller blade for one of those 'extreme' experiences.

You can add to your outdoor experience and increase the equity of your home by paying more attention to the natural condition of your own backyard. Landscaping for wildlife is a great family project yielding year-round enjoyment, even in a city. And bird feeding in summer? ...you bet.

You can either *endure* the Iowa summer, or you can make it *enjoyable*. Grab your sunblock and get out in it. It's healthier for you. You'll have fun. You will create the kind of memories which make life far more worth living.


Jeffrey R. Vonk

IOWA CONSERVATIONIST

FRONT COVER: IOWA'S WILD ROSE
BY KEN FORMANEK

BACK COVER: BOATING ON
SAYLORVILLE LAKE BY CLAY SMITH



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LETTERS

Time To Get Involved

My compliments to the Iowa Conservationist and the IA DNR. For years they have done a good job for all of us who love the outdoors and "Letters" is a great idea.

We outdoor people are a large group and can have a very positive impact on programs which concern us if we use our influence by speaking out on these issues.

An issue which will have an impact in Iowa is the new farm bill which is being formulated now. Sen. Tom Harkin is proposing a Conservation Security Program which would expand the Conservation Reserve Program which pays farmers to keep land out of production for environmental reasons. Another issue is the proposal to cut the budget of the U.S. Fish and Wildlife Service,

an agency which works very closely with the IA DNR especially in northeast Iowa on programs for the Upper Mississippi River Wildlife Refuge.

All of us need to get more involved on these type of conservation issues. Contact your state and U.S. Senators and Representatives and let them know what your views are.

As a group we can make a difference and make Iowa an even better state.

Francis J. Grendler
Cedar Falls

Hats Off

Just a note to thank you for the change in background coloring of the last few pages of the Conservationist. I found with age and failing eyesight it was

difficult to read the pages with dark color backgrounds. This new format is so much better!

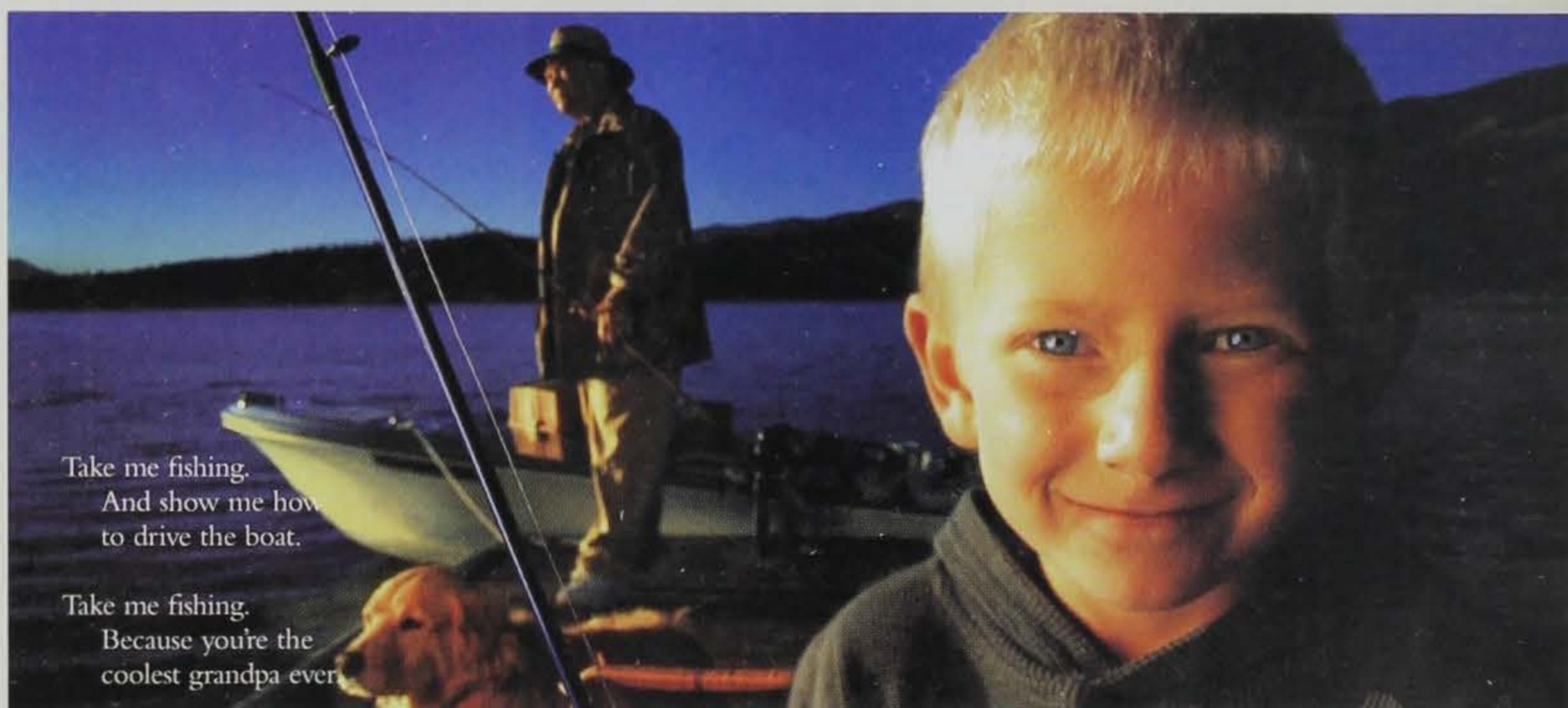
Virginia Walsh
Lamoni

... Several years ago I wrote in that the dark background used for the Warden's Diaries was rather difficult for us to read. So it was quite nice to be able to read the tales on white paper. . .

Paul I. Roberts
Muscatine

This letter was shortened and edited.— Ed.

Our Conservationist magazine came today. I sat down this afternoon and casually picked it up and started looking through it . . . I



Take me fishing.
And show me how
to drive the boat.

Take me fishing.
Because you're the
coolest grandpa ever.

Take me fishing.
So I'll always remember you.

Water works wonders
FOR FISHING, BOATING, AND
THE ENVIRONMENT.

gradually read the articles about attracting white geese — and about Iowa's new prairies. And I read on and on and was very impressed with the whole magazine. I told my husband that I felt moved to tell you so! Good work! We have taken the Conservationist magazine for many years. It is worthwhile!

Alice Hauser
Charles City

This letter is long overdue. I want to say thank you for the annual Iowa Conservationist calendar. I use mine as a daily weather diary on which I record weather conditions and precip amounts. It is interesting to look at previous calendars to compare the records I record and enjoy the beautiful photo pictures.

Please thank those wonderful photographers who shoot the awesome nature shots. They certainly know how to capture mother nature at her finest through the lenses of their cameras. Iowa is filled with beauty. We are so fortunate to have such talented people to record this beauty on film for us nature lovers to enjoy. Thank you again for continuing this calendar project. I look forward to future editions.

Katherine Henshaw
Sioux City

The Iowa Conservationist welcomes letters from readers. Letters should address timely natural resource, environmental or magazine content issues and be no longer than 250 words. They must include the author's name, city of residence and daytime phone number to confirm authenticity. Selected letters may be edited for length and clarity.

Opps

I submitted a 40 inch catch-and-release flathead catfish last year. I just got the March/April 2001 issue of the Conservationist and noticed that I was not listed under the flathead category although mine was larger than at least two other fish listed. I received a letter, patch and certificate last year confirming the catch. Can you explain to me why my fish was not listed?

David L. Cook
Center Point

The omission was an error on our part.— Ed

Misleading?

Your ad telling about the natural resource license plates of Iowa is a little misleading. I got a newer car the past month and was going to get this type of plate but when I was told it would cost \$10 every year just to have the plate I declined. A person on limited income has to watch their pennies and so I just got the regular plate.

Mrs. Delbert F. Palmer
Coon Rapids

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Sixth in a series

by Terry W. Little

RESTORING IOWA'S WILDLIFE

Part 1 — Valuable Lessons Learned

A Brief History of Wildlife Conservation in Iowa

In the previous article in this series I described how a small group of individuals acted at the end of the 19th century to save America's vanishing wildlife heritage. Men like George Bird Grinnell, Theodore Roosevelt and others who had seen first-hand the disappearance of once-abundant wildlife, from the buffalo to the passenger pigeon, and rallied public opinion to do something before it was too late.

They developed the concept of sport hunting and condemned market and subsistence hunting. Early in the 20th century a conservation ethic developed to challenge the unfettered exploitation of natural resources and protect them for future generations. Lands were set aside for wildlife protection through the creation of national wildlife refuges, the U.S. Forest Service and expanding national parks.

Iowans like John Lacey, Aldo Leopold and "Ding" Darling played key roles in expanding Roosevelt's work. By 1935, a legal framework of

laws was established that improved state and federal cooperation to protect wildlife, established federal control over migratory birds and provided dedicated funding for wildlife restoration and management through the sale of hunting licenses, stamps and excise fees on arms and ammunition.

Fledgling education programs were initiated at universities to develop through research sorely needed scientific information about wildlife biology and habitat needs and to train biologists for careers in fish and wildlife conservation. The Cooperative Fish and Wildlife Research Unit at Iowa State University was the first such program in the nation.

Although much progress would follow, most of the key legislation, administrative structure and funding sources were in place by the late 1930s. Then World War II intruded and stalemated the growth of wildlife conservation during most of the next decade. Funds, resources and the

young men needed to employ them were directed instead to the war effort.

The G.I. bill, however, enabled large numbers of returning veterans to attend college, people who might otherwise have been denied the opportunity. By the early 1950s, newly trained fish and wildlife biologists were showing up on the rolls of state and federal agencies, and the stage was set to develop and implement new ideas.

Researchers began exploring the intricacies of wildlife behavior and the biology of survival and reproduction to determine the most efficient ways to manage animals as different as the mourning dove and the white-tailed deer. Wildlife managers began implementing and evaluating strategies to harvest wildlife while protecting their population and provide habitat at critical times of the year.

It took time for information gained from trials and errors, successes and failures, to be spread through the community of wildlife professionals. Eventually cooperative working groups were formed so state agencies could learn from



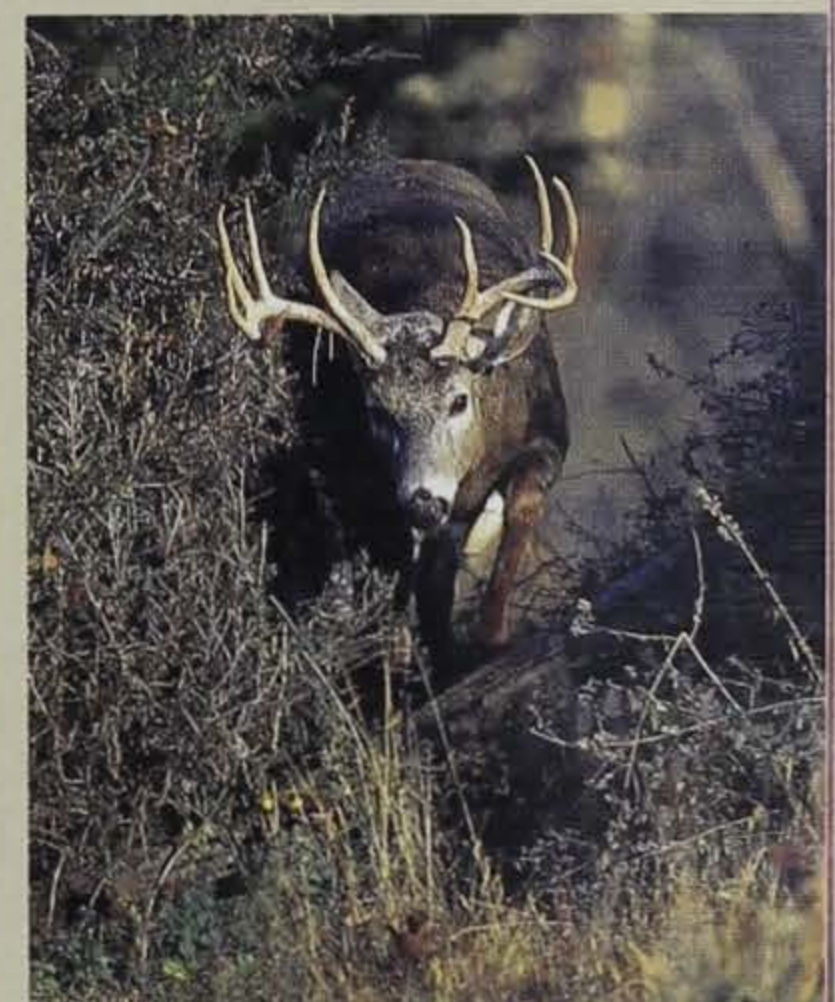
Roger A. Hill



OPPOSITE PAGE: A chance conversation and a trade between two states led to the comeback of the wild turkey in Iowa.

LEFT: In 1960, the giant Canada goose was thought to be extinct. By 1993, nesting giants had been documented in all Iowa counties.

BELOW: Deer were a rare sight in Iowa in the early 1900s. Today, however, more than 100,000 are harvested by hunters every year.



Roger A. Hill

Ty Smedes



Iowa's most popular game bird was actually introduced to the state by accident, when approximately 2,000 escaped from a private game breeder near Cedar Falls.

others' successes and mistakes. The Mississippi Flyway Council, Midwest Pheasant Council and Midwest Deer and Turkey Working Group are just a few examples of annual meetings between state and federal wildlife biologists that have paid tremendous dividends to speed the improvement of wildlife restoration and management.

By the mid-1960s the stage was set, and for the next 40 years a resurgence remarkable and unique in world history occurred in the fortunes of wildlife in America. Space prevents the ability to detail all the successes, but four examples — the ring-necked pheasant, white-tailed deer, wild turkey and giant Canada goose — are pertinent to Iowa.

By 1900, none of the four species roamed Iowa's agricultural plains, forests or wetlands. Once numerous, deer, wild turkeys and geese had been

virtually wiped out by uncontrolled hunting and habitat destruction. Pheasants would not appear in the wild until the accidental escape of 2,000 captive birds from a private game breeder near Cedar Falls in the winter of 1901. Today, all four species are abundant in Iowa. Their rise from oblivion demonstrates the success that can be achieved through well-designed restoration and management programs led by trained, professional wildlife biologists. In a larger sense, these successful programs have benefited all of Iowa's wildlife.

Ring-necked Pheasant

The initial game farm escapees quickly began increasing in number and spread north and west from Cedar Falls, helped along by supplemental releases from other private

breeders. The state became involved as early as 1908, and for the next 70 years, actively promoted the expansion of pheasant populations.

In the early decades a variety of programs were used. Wild pheasants were captured, and young destined for release were reared in game farms at the state fair grounds, Spirit Lake, Lansing, Clive and finally at Boone. The state provided at various times eggs, day-old and two-week-old chicks, and occasionally older pheasants of both wild-trapped and game farm origin. Birds were supplied to farmers, Boy Scouts, 4H groups and sportsmen's clubs to raise and release in the wild. Records are sketchy, but between 1913 and 1932 the state released 100,000 to 150,000 pheasants, mostly in northern Iowa, and in some years distributed as many as 50,000 to 70,000 eggs and

young chicks for private rearing and release.

Until the 1930s many of the efforts were successful. By then pheasants had successfully colonized most of northern Iowa and could be found in incredible numbers in areas with the best habitat. In 1935, seven men flushed 850 pheasants in five hours in Hancock County on a state-sponsored pheasant census. The first hunting season was opened in 1925 in 13 counties in north-central Iowa in response to complaints from farmers about crop damage. By 1945, most of northern Iowa was open to hunting.

But by the mid-1930s, some failures were becoming apparent. In spite of many attempts, pheasants did not take hold in southern Iowa. Repeated releases of young birds and adults in other parts of the state that had stable but low populations did little or nothing to increase pheasant numbers.

The earliest pheasant releases often used wild stock or young produced from game farms that had mostly wild breeders. By 1930, however, the culling of breeding stock had been practiced extensively at state and private game farms to select docile birds that would survive well in captivity and produce many eggs. Biologists eventually learned these less-wild birds and their young were not producing the desired results when they were released. For the next 20 years, however, they were the main source of release stock for mostly unsuccessful efforts to increase pheasant numbers in the north and extend their range into southern Iowa.

By 1960, research on pheasant biology, a better understanding of how genetics affect the behavior and ability of individual animals to survive in the wild, and the recognition that habitat

quality ultimately determines the level of pheasant populations led to a new approach. The emphasis switched from quantity to quality for both release stock and the habitats where they were released.

By then pheasants had existed in northern Iowa in good numbers for decades. Populations were fairly stable and their numbers fluctuated from year to year depending on the amount of habitat available and the severity of weather during the winter and nesting season. Further stocking was deemed useless and was ended.

Biologists expounded why game farm birds did not take hold in southern Iowa. Some suggested calcium needed by hens for egg shell formation, so rich in north Iowa's glaciated soils, was lacking in the wind-blown loess soils that covered southern Iowa. Others believed temperatures were too hot in the nest bowl for eggs and young chicks to survive. Both ideas would ultimately prove unlikely and the focus shifted to habitat quality.

Most of southern Iowa was cattle country dominated by pastures, timber and hayfields. Little corn or soybeans were grown, and the habitat diversity found in northern Iowa was lacking. Only one pheasant population in Union and Adair counties in southwest Iowa appeared to be stable enough to survive. Farmers there raised bluegrass for seed and the tall stands of ungrazed grasses apparently supplied the nesting cover too often absent in pastures. By the late 1950s, that began to change as row crop agriculture slowly crept into parts of southern Iowa. Pheasants, however,

were not spreading to these areas to take advantage of the new habitat.

In 1961, the Iowa Conservation Commission began a bold new experiment to find an answer to the southern Iowa pheasant dilemma. All the old breeding stock from the commission's last game farm at Boone was released en masse in good-looking pheasant habitat in Jefferson County. Within a year nearly all of the 600 birds released had disappeared.

At the same time, all new breeding stock was captured from farms in Union and Adair counties and replenished as needed during the next decade by more wild-trapped birds. The first generation progeny from these wild birds were released in large numbers at sites in Lee, Henry, Wapello, Van Buren, Davis, Appanoose and Mahaska counties and were the foundation stock for what would develop through the next two decades into some of Iowa's best pheasant



DNR file photo

Early on, biologist believed stocking pheasant chicks would produce a sustainable population. They would later learn habitat was the determining factor.

populations. By 1965 all but isolated areas of southern Iowa were open to pheasant hunting. The last counties were opened and pheasant hunting was first permitted statewide in 1976.

Experience and the application of sound biological and ecological principles had finally solved the southern Iowa pheasant problem. A 70-year tradition of pheasant stocking was over and the game farm at Boone was closed for good in 1981.

The end of the game farm era did not end pheasant problems in Iowa, however. Improvements in agricultural technology since the 1960s has led to an accelerated loss of wildlife habitat everywhere. Gradually, the last private wetlands were drained.

Farms became larger as the increased cost of production shrunk profit margins and dictated the need for individuals to farm more acres. As bigger equipment was developed and farms were absorbed by neighbors, farmsteads with their winter

shelterbelts and fencerows were torn out. Pheasant numbers plummeted as habitat was lost, and demands from the public to shorten the hunting season and stock birds to replenish numbers increased.

As a final experiment in stocking pheasants where habitat was limited, state biologists used the last birds from the Boone game farm to stock three wildlife management areas in northern Iowa where previously abundant pheasant numbers had declined substantially. Myre Slough in Winnebago County, Elk Creek in Worth County and Brushy Creek in Webster County were stocked with game farm hens from 1977 to 1979. Pheasant populations increased temporarily at all three locations, but within three years they declined to levels seen before stocking.

Experience with the Conservation Reserve Program (CRP) further strengthened the importance of habitat. Pheasant harvests

directly reflect the number of birds available to hunters. By the mid-1980s the statewide take by hunters had fallen to just 750,000, half of the typically annual harvest just a decade earlier.

The CRP was implemented in 1986 to increase farm income during the worst farm crisis in 50 years. Rather than waste time stocking or transplanting pheasants, commission biologists worked hard to ensure planting mixes

allowed on CRP lands included plants beneficial to pheasants for nesting and winter cover.

Although pheasant numbers were critically low in some parts of

northern Iowa, the impact of adding a million acres of CRP habitat was immediate. By the early 1990s, hunters were taking 1.2 million to 1.4 million roosters annually, a 66 percent increase.

The demise of the CRP demonstrates the same point in reverse. CRP contracts began expiring in 1997 and large blocks of habitat have virtually disappeared from the northern Iowa landscape. Lacking critical habitat once again, pheasant harvests have fallen to just 1 million roosters in 2000 and further declines appear inevitable unless habitat trends are reversed.

Application of the best scientific knowledge cannot solve Iowa's pheasant "problem" as long suitable habitat is left mainly to small tracts of public lands. Lessons learned from a century of pheasant work allowed biologists to identify and address the critical issue — habitat — and steered them away from costly and unproductive efforts like artificial stocking and curtailing hunting opportunity. This lesson would prove invaluable in developing other wildlife restoration programs.

White-tailed Deer

By 1900, only a few scattered herds of white-tailed deer remained along Iowa's border rivers and in captive deer farms. Although the state did little to increase deer numbers, a combination of complete protection, accidental escapes and intentional releases from captive herds, and



Wayne Lanning

During the state's early efforts to establish pheasant populations, wild birds and those raised on game farms were trapped and released across the state.

Roger A. Hill



gradual immigration from surrounding states slowly rebuilt the deer population.

Still, by 1936 there were only 500 to 700 deer in the state and a sighting might bring out an entire small, rural community to get a glimpse of an animal most had never seen. Headlines in local newspapers were assured.

Deer gradually returning to Iowa found an environment perhaps more favorable than the one their ancestors enjoyed prior to settlement. Although nearly two-thirds of Iowa's forests had been removed, conversion of the prairie landscape to agriculture produced a better interspersed of food and cover and a more abundant and consistent food supply than what may have existed at the historic prairie-forest border. Undoubtedly whitetails proved very adaptable at inhabiting nontraditional habitats like

brushy pastures, sloughs and wetlands, drainage ditches, CRP fields and eventually urban areas once thought

to be too congested by human activity for deer to tolerate. And their primary predators — wolves, mountain lions, bobcats and coyotes — were eliminated or greatly reduced before the deer were gone.

Ecologists have defined the term "biological carrying capacity" as the number of animals of a given species a unit of habitat can support in good health over a period of years without destroying the habitat. With abundant food and the absence of natural



DNR file photo

UPPER: Deer have learned to adapt to Iowa's changing environment, allowing populations to thrive.

ABOVE: By 1950, Iowa's deer population was estimated at 1,000 and deer were found in all Iowa counties.

predators, the biological carrying capacity in Iowa for deer seemed nearly unlimited.

By 1950 deer were found in all counties and the population was estimated at 10,000 animals. Concentrations in southwest Iowa prompted complaints of crop damage and resulted in the first modern deer hunting season in 1953. Initial records show 4,008 deer were taken by 3,782 licensed hunters (landowners did not need a license).

In spite of occasional crop damage complaints, for the next 30 years most people agreed there should be more deer in Iowa. The Conservation Commission's deer management strategies reflected the sentiment by carefully controlling the harvest and letting nature take its course.

While the potential growth of a deer herd is far slower than that of small game animals which produce many young each year, research in has shown Iowa deer enjoy several advantages. An abundant food supply and relatively mild winters that seldom physically stress females allow them to have fawns at rates unheard of in traditional, heavily-forested deer ranges. Nearly 70 percent of yearling does will drop a single fawn and most does 2 years old or older will have twins. Triplets and even quadruplets occasionally occur.

Other research has shown that even in the heart of coyote range in southern Iowa, nearly 80 percent of fawns survive to adulthood. Once through the first year, females surviving hunting seasons may live a dozen or more productive years.

During the early period of intentionally conservative deer harvests, a number of strategies were

used to control hunter numbers and the type of deer taken. There were few seasons — just a bow and one shotgun season — compared to the multiple opportunities existing today. In some years there were lotteries for licenses and not all who wanted licenses received them. Eventually everyone was allowed to hunt as deer herds increased, but for years most licenses were restricted to buck-only. Any-sex deer licenses, which greatly enhanced a hunter's chance of bagging a deer, were still issued by lottery and were a hot commodity in any deer hunting party. By 1970, the number of licensed hunters had grown to 45,000, but they took just 14,000 deer. A decade later, still in a period of restricted doe harvests, 93,000 hunters took just 23,000 deer, a 25 percent success rate.

By the late 1970s attitudes about the appropriate number of deer in Iowa slowly began to change. After years of conservative harvests the deer herd entered a phase of rapid growth, exactly the result the public had indicated it wanted. But now deer concentrations in the best habitats in northeast, southeast and south-central Iowa were causing crop damage. Collisions between motorists and deer were becoming more common. In 1988 a survey of farmers indicated that 31 percent thought deer numbers were too high and 38 percent wanted deer numbers reduced. By 1996 this dissatisfaction with deer numbers had risen — 52 percent thought there were too many deer and 65 percent wanted herds reduced.

By the 1990s new voices opposing deer populations were being heard. Deer concentrations in urban areas and parks protected from hunting seemed to be increasing

more rapidly than in the surrounding countryside. More people were moving to quasi-rural developments outside of suburbs to get close to nature. In many cases, deer and other potentially destructive wildlife were a part of nature humans were not prepared to handle.

Damage was no longer confined to agricultural crops. Deer/vehicle collisions increased in high-volume traffic corridors surrounding urban communities. Browsing on ornamental flowers and shrubs occurred in backyards adjacent to open spaces and recreational corridors purposely designed to create diversity in an otherwise crowded urban landscape. Concerns were raised that high-density deer herds were potentially damaging natural vegetation in some parks. Biologists coined a new term — "social carrying capacity" — to recognize biological issues weren't the only factors to be considered when managing deer herds.

Deer proved remarkably adaptive to these new opportunities for living space. Wildlife biologists would have to be equally adaptive. The first challenge was to adjust management philosophies from 30 years of protecting a scarce resource to balancing the interests of several segments of society sharply divided in their opinions — some wanting more deer, some wanting far less. The second challenge was to develop new methods to keep deer numbers in check in situations where traditional control methods like hunting created rejection from citizens unaccustomed or unwilling to deal with wildlife or hunters.

In the past 25 years state biologists have liberalized hunting regulations in response to the deer herd's continued growth. A second season for shotgun hunters was added in 1976 to allow more hunters to safely participate, a season for muzzleloading rifle hunters

was started in 1984, and a second muzzleloader season was installed two years later. Special seasons have been added for young hunters and severely disabled hunters. Nonresidents have been allowed to hunt deer since 1988. Handguns and crossbows have been legalized in certain seasons to encourage more participation.

To increase the take of does, hunters may now purchase extra antlerless deer licenses in all Iowa counties. A bonus season has been instituted to take additional antlerless deer in areas where problems are especially severe. Landowners with exceptional crop damage may also participate in programs to secure extra antlerless licenses and have hunters directed to their property. Special antlerless deer-only hunts have been instituted in several state and county parks and urban areas.

In 1999, 233,690 deer hunting licenses were issued and hunters took 121,635 deer (52 percent success rate). In some years, nearly seven of 10 hunters bag a deer during the two shotgun seasons, where nearly two-thirds of all licenses are sold.

The controversy over deer management is not over. The growth of the deer herd from obscurity to a resource that provides millions of hours of recreational and aesthetic enjoyment is a resounding success of professional wildlife management. But the challenges to managing deer in the 21st century according to social tolerances will be far more difficult than

dealing with the biological issues faced in the past.

Giant Canada Goose

Giant Canada geese, which originally nested throughout Iowa, could be distinguished from the smaller subspecies of Canada geese that nest in the Arctic by their size and habit of nesting no farther north than central Manitoba. By the early 20th century, giant Canadas were thought to be extinct.

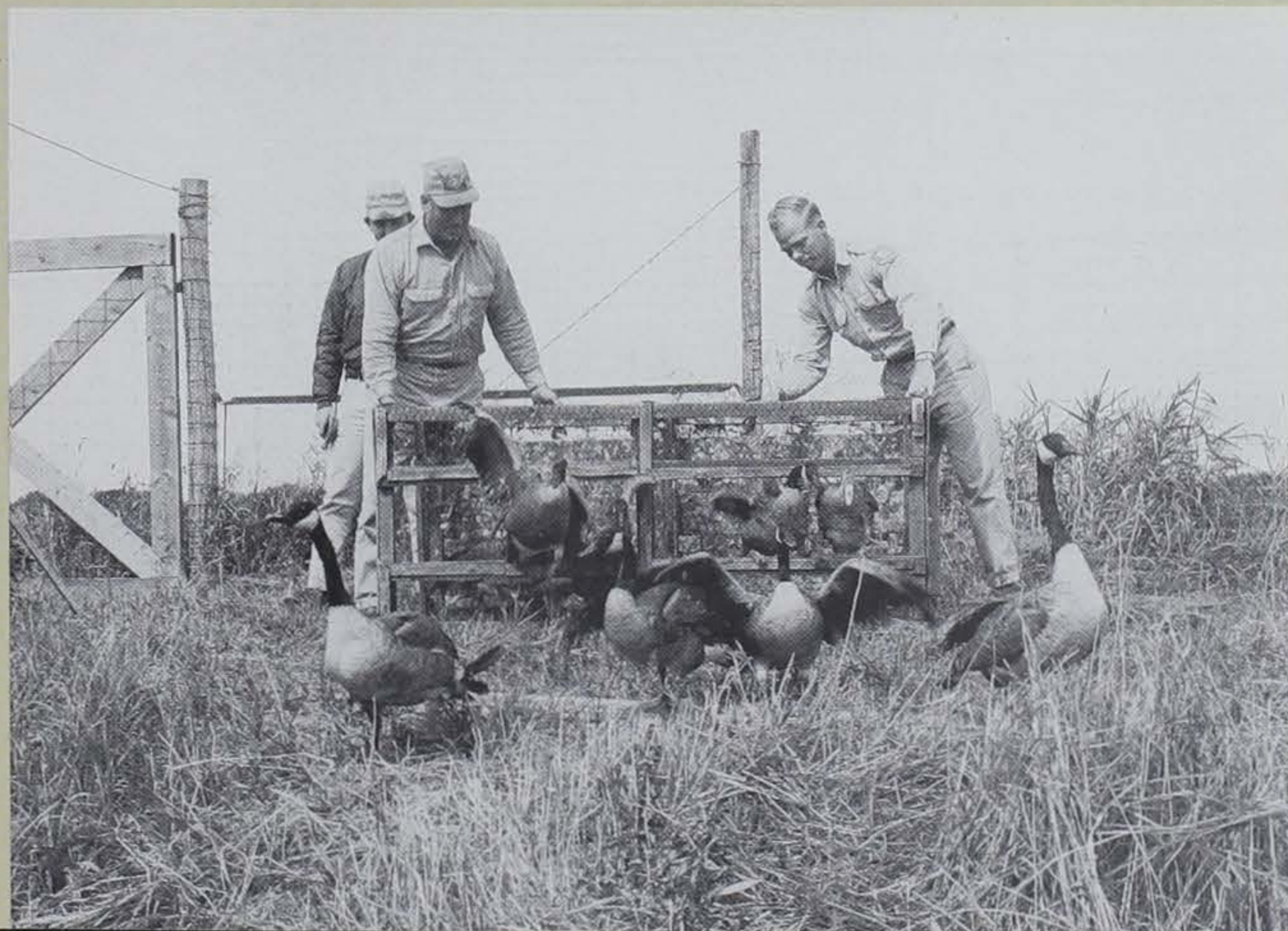
Fortunately, giants were rediscovered nearly simultaneously around 1962 wintering in Silver Lake Park in Rochester, Minn., and nesting on cliffs overlooking the Missouri River in central Missouri. Further investigations found a few apparent giants owned by waterfowl breeders in Iowa, Minnesota and South Dakota. From those few individuals an entire species would be rejuvenated.

Thought to be extinct, a small population of giant Canada geese were rediscovered in Minnesota and Missouri in 1962. From those few birds, an entire species was rejuvenated.

The Conservation Commission began its first giant Canada goose restoration project in 1964, with a goal of returning nesting giants to their remaining habitat in Iowa. Sixteen pairs of flightless giants were obtained from game breeders whose stock originated from wild birds. They were placed in a holding pen on the Ingham Lake Wildlife Management Area in Emmet County and produced a crop of goslings annually.

Young geese were originally wing-clipped to increase the breeding population. Eventually they were allowed to fly free and join migrating flocks of wild Canadas under the theory young females would return to the Ingham area in the spring to nest, bringing new mates with them. The first post-restoration nest of a free-flying giant Canada goose in Iowa was found in 1967. Eventually breeding geese would fill all the

DNR file photo



Release efforts brought the giant Canada goose back from near extinction. Translocation efforts, like the 1981 release at Rathbun Reservoir, have since ended.

and established major restoration areas at Lake Sugema in Van Buren County, Big Marsh WMA in Butler County, Sweet Marsh WMA in Bremer County, Three-Mile Lake in

Union County and Forney Lake WMA in Fremont County.

To protect the new flocks at each major restoration site a large area of



Roger Sparks

nearby wetlands and pioneer new sites outside the management area.

To expound on the success at Ingham, captive flocks were started in the 1970s and 1980s at the Smith Slough Wildlife Management Area (WMA) in Clay County, Hogsback WMA in Dickinson County, Rice Lake WMA in Winnebago County, Colyn WMA in Lucas County, Red Rock Reservoir in Marion County, Bays Branch WMA in Guthrie County, Lake Icaria State Park in Adams County, Badger Lake WMA in Monona County and Green Island WMA in Jackson County. All sites have developed breeding populations of giant Canadas, although the southern Iowa sites have progressed more slowly.

Subsequent research on Canada geese indicated young females tended to return to nest in the area where they learned to fly. This permitted experiments with transplanting flightless goslings directly to unoccupied wetlands to establish a nesting tradition, eliminating the need to use captive stock. From 1983 through 1999 the DNR transplanted 18,600 geese to 38 additional restoration sites

surrounding farmland was closed to all Canada goose hunting. The protection and presence of captive giants to serve as a call flock gradually increased the number of migrating Canadas that stopped, which provided better hunting opportunities outside the closed area. By 1996, 15 areas were closed to Canada goose hunting, although many had been shrunk to a much smaller size as flocks reached peak numbers.

The fact the restoration program reached its goal of restoring breeding giant Canada geese to Iowa is not arguable. In 1960 the species was thought to be extinct. By 1993 nesting giants were documented in all Iowa counties. Breeding populations have continued to increase, reaching 17,000 to 18,000 nesting adults in the late 1990s, producing 33,000 to 36,000 goslings annually. The presence of 20,000 to 27,000 nonbreeding adults, presumably future nesters, indicates that future growth is likely.

Resident giants have also increased the holdover of migrating geese in Iowa and improved hunting opportunities for Canada geese across

the state. Peak fall numbers commonly reach 20,000 or more in the older restoration sites in northern Iowa, and numbers continue to rise elsewhere. Iowa's total Canada goose harvest has increased from just 4,000 to 7,000 in the early 1960s to 30,000 to 60,000 in the late 1990s. The bulk of this harvest has come from giant Canadas, many hatched in Iowa.

The restoration program has not proceeded entirely free of controversy. As early as the late 1970s complaints of goose depredations on crops planted adjacent to wetlands where geese were nesting prompted a demand for protection of private property. Flightless goslings and molting adults merely had to walk out of wetlands to graze in newly germinating crop fields, causing substantial crop loss.

Commission staff responded with several actions; erecting permanent fences in consistently troublesome locations, erecting temporary fences in areas with short-term problems caused by crop rotations, planting lure crops to keep geese on public land, providing scare devices like propane cannons and shotgun cracker shells to landowners to chase geese off private property, acquiring key tracts of land from willing sellers, translocating geese from troublesome marshes and reducing the size of the closed areas to control the growth of flocks. No method has been fool-proof, but where they have been implemented, complaints have decreased.

Similar problems have developed in some urban areas where ponds, lagoons and lakes have been built as landscaping at golf courses, business and housing complexes. Fertilized grass kept mowed and nutritious can

attract flocks of geese that become aggressive to humans and pets and foul sidewalks, yards and beaches. In such cases, flightless geese can be removed in early summer, but other methods like capture devices and hunting seasons are not appropriate.

In response to increased goose damage complaints, a special two-day "Canada goose only" hunting season in early September was started north of Interstate 80 in 1996. The season

protected still-growing breeding flocks in southern Iowa and allowed the harvest of locally produced giants before migrating smaller Canadas arrived from the Arctic. Early analysis of band returns indicates the season may have been too effective. Mortality of locally produced geese has been relatively high and breeding populations of geese have declined around the oldest restoration sites where most of the hunters have

concentrated. Poor breeding conditions may have confused the issue, however, and more time will be needed before a final answer is available.

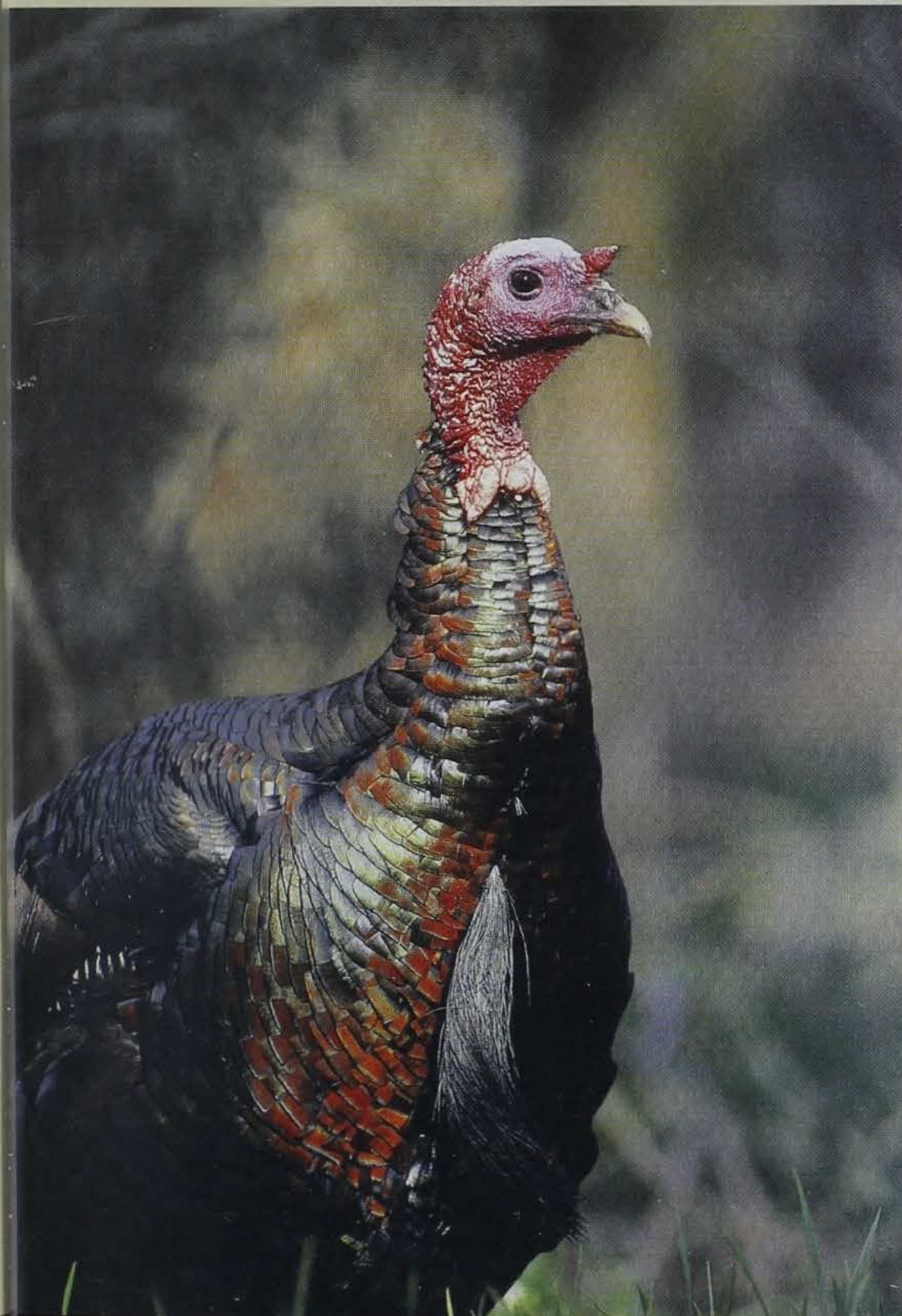
Learning effective methods to deal with troublesome urban geese and developing hunting strategies that maintain desired populations of giants while provide adequate protection for private land may be the two biggest challenges facing the Canada goose program.

Eastern Wild Turkeys

Throughout most of the first half of the 20th century wild turkeys were in jeopardy wherever they still existed in the remote swamp and mountain areas of the southeast and southwest. Based on habitats where they were found, biologists believed at least 10,000 continuous acres of forest were needed for them to survive. If this were true, very little of their historic range was habitable, and attempts to restore turkey populations had been mostly unsuccessful. Some predicted the turkey's extinction was inevitable.

The prevailing belief of habitat requirements was confused by the fact that, because of their incredible wariness, no method existed to capture and transplant a large number of wild birds. Much time, energy and money was spent by several state

No matter where they have been released, wild turkeys have established viable populations. They now occupy virtually all of Iowa's remaining forest lands.



Roger A. Hill

wildlife agencies in unsuccessful attempts to develop a turkey docile enough to reproduce successfully in

captivity and still wild enough to survive when released. It was the same game farm pheasant dilemma wrapped in a bigger package. It took years of research in the Missouri Ozarks by A. Sarker Leopold,

Aldo's son, to prove that game farm turkeys were not the answer either.

By 1960, state wildlife agencies learned to trap wild turkeys using cannon-propelled nets, and the situation began a slow turn for the better. Early releases of wild, trapped birds seemed promising even in smaller habitat blocks, and the Iowa Conservation Commission decided to get into the turkey restoration business.

However, another biological principle still poorly understood nearly sabotaged the effort. Four subspecies of wild turkeys lived in the

United States. The eastern wild turkey, native to Iowa, inhabited the dense hardwood and conifer forests mostly east of a line from southern Minnesota to eastern Texas. The Osceola subspecies was found in semitropical forests of southern Florida. Rio Grande turkeys lived in

the arid brushlands of western Oklahoma and Texas. The Merriams wild turkey was found mostly in the open ponderosa pine forests of the West. All four subspecies freely interbreed and hybrids are also fertile, but because they were adapted to such different ecological conditions, none of the four would eventually prove to do well when transplanted to nonnative habitats.

The only turkeys available for Iowa's first restoration attempts were 39 Rio Grande turkeys from Texas released in Allamakee County in 1961 and 21 Merriams from Nebraska released in Lucas and Monona counties in 1966. All failed to develop viable populations, and the restoration program appeared headed for a premature end.

Fortunately a chance conversation between wildlife biologists from Iowa and Missouri over a campfire on a Missouri Ozark turkey hunt opened the door for another try. An agreement was made to trade eastern turkeys trapped in the Ozarks for ruffed grouse trapped in northeast Iowa, and in 1966, 11 Missouri turkeys were released in Shimek State Forest in Lee County. A second shipment of 16 Missouri easterns went to Stephen's State Forest in Lucas County in 1968 and the rest is history.

By the early 1970s there were an estimated 400 to 500 wild turkeys in each state forest and an in-state trap and transfer program was started. Iowa and Missouri also expanded the initial trade and exchanged an additional 450 wild turkeys for first-generation pheasants raised at the Boone game farm. These turkeys went to various sites in western and northeastern Iowa in the late 1970s.

From 1972 through 1999, 3,578 eastern wild turkeys were released at



DNR file photo



Jerry Leonard

UPPER: Wild turkeys have been trapped and transferred to all but 12 largely unforested counties in north-central and northwest Iowa.

ABOVE: Turkey check stations were once used to monitor harvests.

259 sites in Iowa. All but 12 counties in largely unforested north-central and northwest Iowa have received transplants. This effort represents tens of thousands of days in cold and uncomfortable turkey blinds by hundreds of DNR wildlife employees.

From the beginning it was apparent turkeys were doing far better in Iowa's fragmented, small blocks of oak-hickory forest than ever thought possible. No matter where they have been placed, turkeys have established viable populations, even in widely scattered small woodlots in north-central Iowa. Turkeys have expanded from these release sites to occupy virtually all of Iowa's remaining forest lands, including some urban parks and greenbelts and even brushy pastures where few mature trees can be found. In most of Iowa, turkeys have reached population levels that far exceed those found in their traditional heavily forested habitats.

Biologists believe there are two reasons to explain the success. Like deer, turkeys have found that small blocks of timber interspersed with pasture and crop land provide habitat that is superior to extensive forests. Though they prefer native foods like acorns, berries and seeds, they readily adapt to feed on waste grains in harvested fields if natural foods are depleted or covered by snow. Crop field margins, hay fields, pastures and other openings abound with seeds and insects in the summer for rapidly growing poults. This diversity provides a higher quality and more consistent food supply than large forest tracts where nut and seed crops vary widely from year to year.

It took state biologists more than a decade of research on the survival and productivity of turkeys to unravel the second reason for their success.

Historically, turkeys were thought to have the population dynamics of an overgrown pheasant or quail. They were believed to be very productive but short-lived, so most could be harvested each year without harming populations.

Research started in Iowa in 1978 showed this to be untrue. Because of their size wild turkeys have few predators and survive Iowa's winters better than smaller game birds. Once they are grown only hunters take significant numbers of males, and hens seem vulnerable to predation only for the month or so they are nesting. An adult hen has the capability of surviving several years to nest.

Surprisingly, hen turkeys proved to be not as successful at nesting as pheasants and quail. However, their longer life span means turkeys can survive poor nesting seasons without the sometimes large fluctuations in numbers that are common in smaller game birds. It now seems likely the reason turkeys survived only in remote habitats is not that the habitats were superior, rather they were the only places they could survive aggressive human persecution.

This discovery, since corroborated by research in a number of states, led biologists to design hunting seasons that were conservative in the fall when hens and young birds are most vulnerable to harvest and liberal in the spring when most hunters take excess, nonbreeding males.

The growth in hunting opportunities was carefully controlled as new areas developed huntable populations, but has since greatly expanded as turkeys have colonized all available habitats. The first spring season was opened around the original release sites in southern and northeast Iowa in 1974, with 300 hunters taking 110

turkeys. By 1999, nearly 60,000 licenses were issued and 23,000 gobblers were harvested.

A conservative fall hunting season was opened in 1981 with a typical license allotment of 11,000 to 12,000 and a harvest of 4,000 to 5,000 turkeys of either sex allowed.

Valuable Lessons Learned

Told in retrospect, these efforts to improve pheasant populations and restore deer, turkeys and Canada geese seem rather simple and straightforward. Contrary, they were anything but easy.

In the beginning considerable skepticism existed within the public and even among wildlife professionals that any of these efforts would be successful. Very little happened without some mistakes being made. Answers to problems were not always available until lengthy research studies could be completed, or solutions had to be discovered through trial and error. None of the projects would have succeeded without hard work by dedicated wildlife professionals, usually under difficult conditions and almost never with enough money or help available.

Yet they provided valuable insights that biologists were able to build on in designing restoration programs that would directly or indirectly benefit nearly all of Iowa's wildlife, expand wildlife diversity and increase wildlife habitat.

More restoration success will be described in the next article in this series.

Terry W. Little is the wildlife research supervisor for the department in Des Moines.

Summer Home Improvements Make Dollars and Cents

Article by Julie Tack and Katie Nevins

Photo by Clay Smith

With the chill of winter gone and the heat of summer in full swing, now is the perfect time to improve energy efficiency in the home. Energy analysts forecast next winter's heating costs will rival this past year's, making simple efficiency measures an even more affordable choice.

Heating and cooling account for almost half of a home's energy consumption. Insulation, properly running equipment, and energy-saving techniques can lower those costs by 10 to 50 percent.

Insulation

Unless a home is properly insulated, half of its indoor air could

escape. Check the insulation in the attic, walls, basement and crawl spaces to ensure it meets recommended R-value levels for your area — the higher the R-value, the better resistance to transferring heat.

Weatherization

Weatherizing a home can save 10 percent or more on a home's energy bills by reducing air leaks. An easy way to prevent air leaks is to caulk, seal and weather-strip all seams, cracks and openings.

Programmable Thermostat

To save another 10 percent, install a programmable thermostat, which adjusts the home's tempera-

How Much Can You Save On Heating and Cooling Costs?

Programmable Thermostat	10 percent
Caulking, Weather Stripping, Sealing	10 percent
Landscaping	25 percent
Insulation and Weatherization	30 percent
Heat Pumps	40 percent
Solar Heating and Cooling	50 percent
Lighting	50 percent

From the U.S. Dept. of Energy





ture for different parts of the day. While shopping for a programmable thermostat, look for the ENERGYSTAR® label.

Water Heaters

Heating water is a home's third largest energy expense, accounting for 14 percent of a utility bill. Low-flow showerheads and toilets, a water-heater blanket, or even replacing old, inefficient equipment significantly affect hot water use and efficiency. Also, turn down the water heater thermostat to 120 degrees.

Landscaping

Landscaping makes a home look beautiful and is a natural way to reduce energy bills. Using computer models, the Department of Energy predicts that three trees correctly placed around a home can save a household \$100 to \$250 a year. The tree will help keep a house cool in the summer, and allow sunlight in during the winter.

Heating and Cooling Equipment

Now is the time to consider replacing an old furnace or air conditioner with an energy-efficient model. Again, look for the ENERGYSTAR® label and be sure they are properly sized. A furnace that is 95 percent energy efficient can save \$60 on heating a year, compared to an 80-percent-efficient furnace. Also have your furnace serviced and replace air filters every three months.

Alternative Heating and Cooling Sources

Other heating equipment alternatives can save significant money on a home's heating costs. Heat pumps, which rely on electricity, provide three times more heating than the equivalent amount of energy they consume. They also cool the home in the summer by

pumping warm indoor air outside.

Another option is solar heating and cooling. A home designed with passive solar designs, such as south-facing windows, heat-absorbing materials and other techniques, can reduce heating costs by 50 percent.

Lighting

Increasing lighting efficiency is one of the fastest ways to decrease energy bills. If 25 percent of lights in high-use areas are replaced with fluorescents, about 50 percent can be saved on lighting costs.

Use linear fluorescent and energy-efficient compact fluorescent lamps (CFLs) in fixtures throughout the home to provide high-quality and high-efficiency lighting. Fluorescent lamps are more efficient than incandescent bulbs and last six to 10 times longer. Although fluorescent and compact fluorescent lamps are more expensive than incandescent bulbs, they pay for themselves over their lifetime by saving energy.

Energy Savers Booklet

These and many other tips can be found in the U.S. Department of Energy's *Energy Savers: Tips on Saving Energy and Money at Home*. To obtain a copy of this book go to:

www.eren.doe.gov/consumerinfo/energy_savers. Or contact Craig Stark at (515) 281-4739, or e-mail him at Craig.Stark@dnr.state.ia.us.

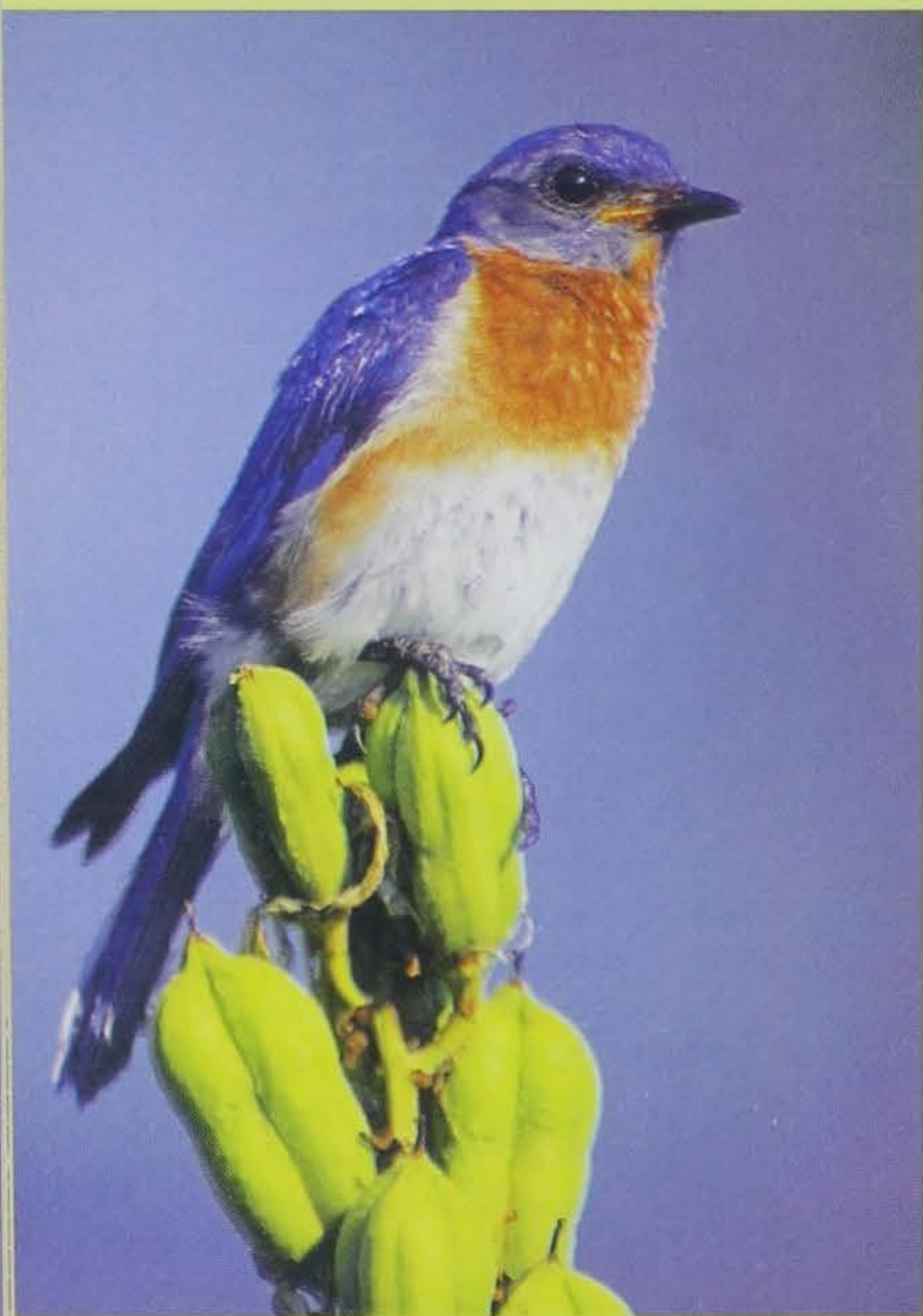
Julie Tack is an energy information specialist for the department in Des Moines.

Katie Nevins is an intern with the energy bureau and a student at Grand View College.

Bluebird Report Form 2001

For those with established bluebird boxes, sending in the report helps preserve these birds. The data collected from the reports provide a more accurate picture of the birds' welfare and recovery in Iowa. Please take the opportunity to record your findings this summer and return to Jaclyn Hill.

A bluebird box plan, as well as more information on bluebirds, is available by sending a self-addressed stamped envelope to Jaclyn Hill at the address below.



Ty Smedes

- _____ How many bluebird boxes did you monitor?
- _____ How many successful broods?
(a single nesting with one or more bluebirds fledged)
- _____ How many *blue* bluebird eggs?
- _____ How many *white* bluebird eggs?
- _____ How many bluebirds hatched?
(This number cannot be greater than the number of eggs.)
- _____ How many bluebirds fledged?
(This number cannot be greater than the number of eggs.)
- _____ How many tree swallows hatched?
- _____ How many tree swallows fledged?
- _____ How many chickadees hatched?
- _____ How many chickadees fledged?
- _____ How many kestrel boxes did you monitor?
- _____ How many kestrels fledged?
- _____ How many purple martin compartments did you monitor?
- _____ How many purple martins fledged?

LAST NAME

FIRST NAME

BOX LOCATION, COUNTY

ADDRESS

(AREA CODE) TELEPHONE

CITY

STATE

ZIP CODE



Send to: Jaclyn Hill, 2946 Ubben Ave., Ellsworth, IA 50075

Note: If you have boxes in more than one county, please submit a separate report for each count.
No group names, individual reports only.



The Green Miles

By Jerry Dickinson



There is no mistaking the stark orange signature color of the Iowa Department of Transportation. The signs, bright and discernible, warn motorists of driving conditions, detours and delays. The trucks, equally bright and even more noticeable, are a familiar sight on Iowa's roadways.

Underneath the conspicuous orange coating, however, is an ostensible layer of green. The department, under Director Mark Wandro, is making the environment a keystone of its policy decisions. More and more, the environment is affecting road design, location and construction plans. And more and more, Iowa motorists are looking past the drab stretches of slate grey and seeing green.



A Note From The DOT and DNR Directors

"Transportation is a necessary component of Iowa's economic prosperity and social well-being. However, constructing and maintaining a transportation system in a way that also protects the state's environmental resources can present some difficult challenges.

As the directors of the Iowa Department of Transportation and Iowa Department of Natural Resources, we and our staff are continually working to reconcile any disparities for the benefit of Iowa. Transportation and natural resources can co-exist in harmony.

You will see in the following pages many examples of the measures taken by the DOT, in cooperation with DNR and other public agencies, communities and individuals, to address Iowa's transportation and environmental needs.

It may take extra work, more time and a sincere approach to considering what is best for Iowa, but the benefits will transcend many generations to come. As we carry out our responsibilities, we need and appreciate the input from Iowans on how to succeed in your behalf."

Mark F. Wandro
Mark F. Wandro, P.E., L.S.
DOT Director

Jeffrey R. Vonk
Jeffrey R. Vonk
DNR Director

Highways are the most used and the most visible element of Iowa's transportation system. They impact Iowa's environment, both positively and negatively. Building and maintaining roads disturbs land and disrupts its use. At the same time, wildlife habitat and driving conditions can be greatly enhanced, making travelling through Iowa a more enjoyable experience. With the help of numerous local, state and federal agencies, including the Department of Natural Resources, the DOT is working to make Iowa a cleaner and greener state.

Erosion Control A Priority

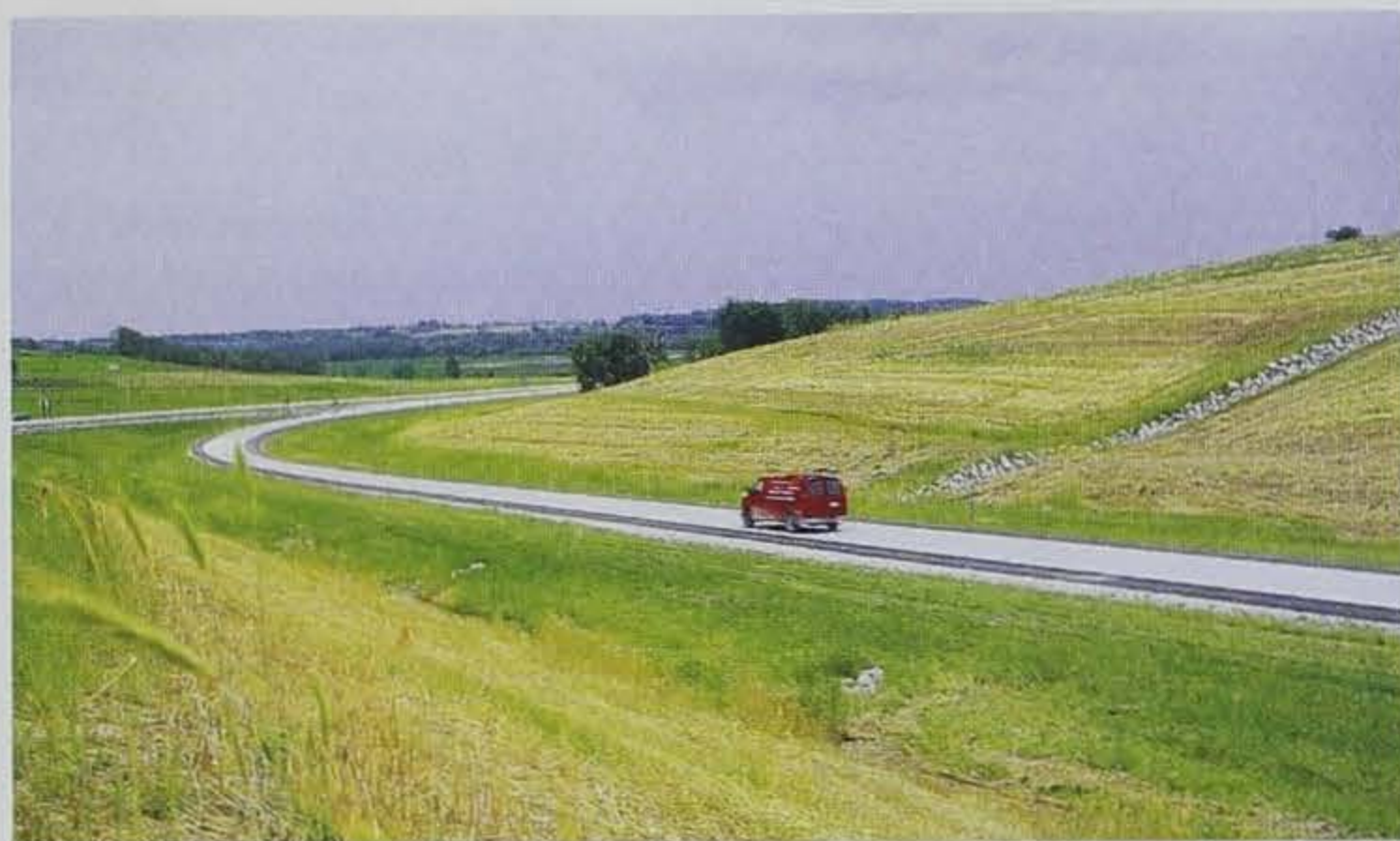
Soil erosion and silt are the leading pollutants of surface water, something the DOT must consider when building, repairing or replacing highways.

"Silt introduced into a waterway can reduce its capacity," said Ole Skaar, a member of the DOT's roadside development section, "which can reduce the effectiveness of the waterway for flood control and also upset the aquatic system."

Due to the federal Clean Water Act and the DOT's growing emphasis on the environment, controlling erosion and silt pollution has increasingly become a priority for the department.

"There are now many conditions we have to meet with the Clean Water Act and with storm water permits required to build roads," said Skaar. "With temporary erosion control during construction and permanent measures after the road is built, we do the best we can to control run off and siltation, and diminish the chance of polluting local surface water."

What method is used as a temporary



Clay Smith

LEFT: Erosion control has become a priority with the DOT when building, repairing or replacing roads.

BELOW: The U.S. Highway 20 project was a unique challenge given the fact it passed through the environmentally sensitive Iowa River Greenbelt in Hardin and Grundy counties.

measure depends on the situation.

Often, ground cover seeding is used to provide a root base to hold the soil in place after grading work is done, but before other construction work is completed. Rock riprap is sometimes used to protect the soil and slow the flow of water. Other methods include silt fences, dikes, basins or ditches and detention ponds. In many cases, temporary erosion measures are incorporated into the permanent erosion control plan.

Iowa River Greenbelt Provides Special Challenges

Preventing water pollution factors in to road design and development decisions. However, it is not the only consideration. Factors that impact others areas of the environment must also be considered. U.S. Highway 20 running through the Iowa River Greenbelt in Hardin and Grundy counties is a prime example of where environmental concerns met transportation needs, with an outcome that should benefit both.



DOT photo

A bridge construction technique known as "launching" is being used on the U.S. Highway 20 project to minimize disruption of the area. The method is used widely in Europe but rarely in the United States. Because of the environmental impacts taken into consideration, U.S. 20 has been designated "the environmental highway" by groups working for improvements to the route.



DOT photo

historic, ecological and archaeological significance.

The greenbelt is also the home to many threatened, endangered or protected plant, animal and aquatic species, including:

- several winter roosting areas for bald eagles;
- several rare species of mussels, some found only in the waters of the Iowa River Greenbelt area, which are very sensitive to water purity and temperature changes; and
- natural crop sites of the monkshood, a federally protected

plant which exists in the river valley, in addition to the many plant species common to the wetlands of the river banks.

An improved U.S. 20 across Iowa has been in the works since the mid-1960s. Studies of the sensitive greenbelt area began in the early 1970s. Environmental regulations, also established during this time, caused the DOT to find innovative ways to build the highway, and preserve and protect the ecological system.

In 1996, after nearly three decades, a location for the relocated highway through Grundy and Hardin counties was finalized. Six construction and design plans for a bridge

The challenge was to provide a modern, four-lane highway to meet traffic needs, while protecting the environmentally sensitive Iowa Greenbelt, which runs along a 50-mile stretch of the Iowa River.



DOT photo

The Iowa River Greenbelt is a rare, remaining fragment of what our state used to be, a strip of old-growth woodland that has survived the age of agriculture. It is an area of great

spanning the Iowa River were evaluated.

The U.S. 20 bridge that was selected will tread gently through the greenbelt. To minimize the impact of construction, the DOT will employ a unique bridge-building technique not normally used in the United States. Engineers will use a technique called "launching," which has been used widely in Europe.

This technique is not commonly used for erection of steel I-girder bridges like the U.S. 20 bridge, and it has never been used on a project of this magnitude in the United States.

"Launching" works like this:

Sections of the bridge superstructure or deck will be partially constructed in a pit located above the valley at the east end of the site. This "launching pit" will be dug in-line with what will eventually be the approaching roadway.

The first two pre-constructed sections will be placed side-by-side, assuming their positions as sections of the eastbound and westbound traffic lanes.

Temporary "launching skids" are attached to the front of these first sections. As new bridge sections are built in the launching pit, they are attached to the other sections, forming two lines.

The lines are alternatively pushed out or launched from the edge of the valley onto the bridge piers. (None of the piers are located in the waterway.)

The skid at the front of each line reduces the tilt and keeps the lines on

target. Temporary bearings placed on the bridge piers assist with the process of rolling the lines all the way across the valley.

When the launching process is complete, the skids are removed and the full-length superstructure is permanently attached to the piers.

Other construction restrictions to ease impacts on the area included:

- monitoring construction activities for a possible "winter shutdown period" from Nov. 1 through April 15, if the noise or activities disrupt roosting eagles;
- preventing equipment fluid spills (fuel, oil, etc.) from reaching the river through better containment systems;
- preserving existing vegetation through tailored construction activities;
- creating drainage paths and sediment basins to direct rain water and melted snow (and road salts) on each side of the river;
- savings the cleared, woody vegetation for future landscaping; and
- saving the large stones and natural rock for landscaping.

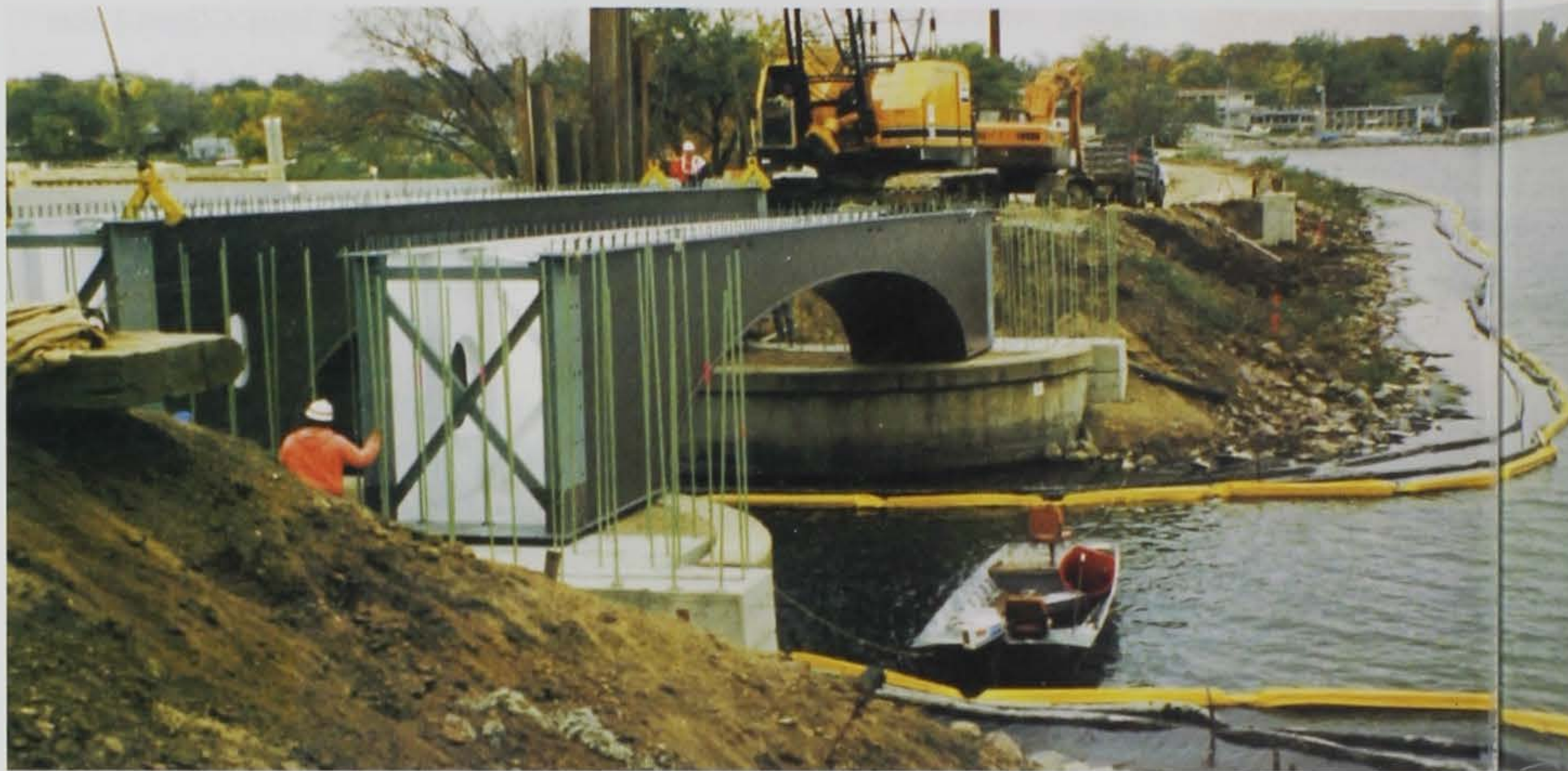
By the time construction is completed on the highway and bridge, a four-lane U.S. 20 will stretch more than halfway across the state, from the Mississippi River to Fort Dodge, with minimal visual and physical effects on the greenbelt area. Future plans call for the highway to be extended to Sioux City, with more than 5,000 acres of prairie grass, wildflowers, trees and shrubs planted along the entire stretch.

Protecting Iowa's Great Lakes Area

U.S. Highway 71, which bisects Dickinson County and runs through the heart of the Iowa Great Lakes Region, was another challenge where transportation improvement plans faced environmental concerns, as well as possible conflicts with business interests and historical preservation. Protecting the resources of the area was important, but so was meeting the needs of communities like West Okoboji, Arnolds Park and Spirit Lake, cities dependent on tourism.

To meet the challenge, in September 1995 the DOT brought together those who had a stake in the area. Civic leaders, interest groups, residents, organizations and DNR staff were asked for input. From that effort, the U.S. 71 Corridor Partners Group was formed, which along with its subcommittees, initiated several design modifications to meet the needs and wants of area citizens, businesses, travelers and recreationists.

To reduce possible contamination of the Great Lakes, several settling basins were installed to protect East and West Okoboji, Minnewashta and Center Lake. An existing storm sewer was retrofitted with a settling basin at West Okoboji. The basins were designed to treat all water going into the lakes, not just highway runoff. Water quality was monitored closely, and construction activities were modified as needed to protect lake water.



DOT photo

UPPER: Absorbent booms were used to prevent disrupted soil from entering the lake during construction of the causeway between East and West Okoboji.

ABOVE: The retaining wall erected to support U.S. 71 near the East/West Okoboji causeway was constructed with earth-tone concrete blocks to make it more attractive and fitting to the area.

"It was a real grassroots kind of relationship," said Barb Lynch, program supervisor at the DNR's environmental protection field office in Spencer, who actively participated in weekly construction meetings and monitored the work. When the original plans didn't provide the optimum protection for the Great Lakes, "we changed them" to something that would work better, she said.

Lynch said the DOT also had landscapers use low or phosphorous-free fertilizer to promote vegetation growth along the portion of the highway running adjacent to the lakes, a decision she said was "much appreciated" by the DNR.

The partners group also proposed a shift in the roadway location moving



DOT photo

it slightly to the west so a bike trail through Arnolds Park could be relocated to parallel U.S. 71, which in turn helped move motor vehicles through the area more effectively. This recommendation was adopted, as well as modifications in Okoboji to improve the bike trail system.

A recreational underpass was constructed beneath U.S. 71 near the south end of the causeway to improve safety for pedestrians, bicyclists or snowmobilers

wanting to cross the highway. With a lack of adequate parking at the adjacent city beach, the underpass also facilitated access to the beach from available parking at Claire Wilson Park. The retaining wall used to support the highway was built with earth-tone concrete blocks to make it more attractive and fitting to the area, and decorative lights and handrails were installed.

Eddyville Bypass and Engeldinger Marsh

Environmental concerns also altered the path of the Eddyville bypass on U.S. Highway 63 in southeast Iowa. Original plans called for the route to run through an area found to hold the threatened pale green orchid and ornate box turtle, as well as unique sand dune



Mark Leoschke

formations. Because of the find, plans for the bypass were changed to avoid impacting the sensitive habitat.

The DOT is also buying the land where the turtles and orchids were found, as well as nearby areas inhabited by snakes, lizards and other plant and turtle species. More than 250 acres will be preserved and converted into a "sand prairie" for observing, photographing and studying the natural features, plants and animals of the area.

In central Iowa, the DOT worked with several local agencies, ecologists and environmental groups to alter the planned route of the U.S. Highway 65/Iowa 330 corridor between Des Moines and Marshalltown. The original route would have passed through the Engeldinger Marsh, one of the few remaining sedge meadows in the state, and the nearby Kimberly Wetland, where the mulberry winged skipper, another protected species, was found.

The DOT agreed to alter the path of the Eddyville bypass on U.S. Highway 63 after the pale green orchid (left) and ornate box turtle were found there. Both are considered threatened in Iowa.

Erosion Control Major Factor in Road Construction

Once a construction project is complete, a permanent erosion control plan is developed.

"This could include the use of different seed mixtures and the placement of rock riprap at various locations in the ditch to slow the water flow," Skaar said. "The seed mixture will depend on the soil type, topography and geographic location with different soil moisture levels."

Seed plantings provide a self-sustaining vegetative ground cover to prevent erosion and sediment pollution, while at the same time adding beauty to the roadside, creating wildlife habitat and establishing weed control.

Illustrating the DOT's growing emphasis on protecting Iowa's waterways, Skaar points to the department's increase in water erosion projects. As early as the 1980s, the DOT was involved in five

BOTTOM: Roadside planting of wildflowers and native grasses and trees are becoming more prominent in road improvement projects.

BELOW: Riprapping ditches is one method used to control soil erosion.



DOT photo



DOT photo

to seven projects each year. Today, it may complete as many as 22 per year.

"This shows our strong commitment to the Clean Water Act and to being environmentally conscious when we build," Skaar said.

Native grasses and wildflowers are the preferred vegetation in post-construction restoration efforts. During the first growing season, the planting is mowed three times to control weeds. After the grasses are established, if all goes well, the only maintenance needed is spot mowing and/or spot herbicide application.

"That's one of the benefits of native grasses and wildflowers in our roadsides," Skarr said.

"They grow more readily in our climate, are adapted to our soil types and will grow densely enough to keep out many noxious weeds."

The DOT continues to study new methods and products to help stop erosion. "We are trying to establish warm-season native grasses and wildflowers in rural areas where we want to minimize maintenance by reducing mowing and spraying and provide an environmentally sound roadside that is more attractive to the traveling public and provides better wildlife habitat."



DOT photo

As part of a class project, students at Maquoketa Middle School pitched in to plant native prairie grasses and flowers at the intersection of Iowa highways 61 and 64.

Roadside Plantings Beautify, As Well As Protect

Some existing highway roadsides are also getting a vegetative face-lift. During the early 1990s, the DOT replanted seven miles of the Interstate 35 corridor from the McFarland Park interchange north to the Roland interchange in Story County as a special test site.

Approximately 130 native wildflower species, 32 native grasses and 32 burr oak trees were planted in the test site beginning in May 1994. Existing trees and shrubs were left unless they were damaged. This project has provided important data for seed germination, plant survival and maintenance techniques.

The research has continued along five miles of I-35 from U.S. Highway 30 north to the McFarland Park interchange, where planting began in the spring of 1996. This research has provided data on

fall mowing only versus spring mowing, controlled burns in the fall versus spring, and no maintenance at 15 different sites within the planting corridor. Another possible treatment under consideration is mowing and bailing to remove mowed materials.

The roadside planting research has led to other similar plantings in central Iowa, including U.S. 30 from Ames to Nevada and a prairie overlook park in Story City, part of a gateway enhancement project. The department plans to eventually replant all state-managed Iowa roadways with native grasses, wildflowers, trees and shrubs.

Schools Lend A Hand

To meet its restoration goals, the DOT has worked with local governments, community and school groups, and individuals. One of the more

active groups has been Margo Springer's students at the Maquoketa Middle School.

"Margo contacted us to see if there was a project the kids could become involved in," said Skaar. "We were planning a native prairie planting at the intersection of Iowa 61 and Iowa 64, so we decided this would be a good time for the kids to learn about native Iowa plants and why we use them."

Approximately 80 kids were rotated at four sites along the roadways. Students were given a brief presentation at each site to tell them about the DOT's planting program and why the DOT is planting native prairie grasses and wildflowers in Iowa roadsides. After a quick demonstration of broadcast planting techniques, the kids were let loose with buckets of seed to assist in the planting.



Packwood

H17

30

Pleasant Plain

3

Wayland

7

78

Olds

Winfield

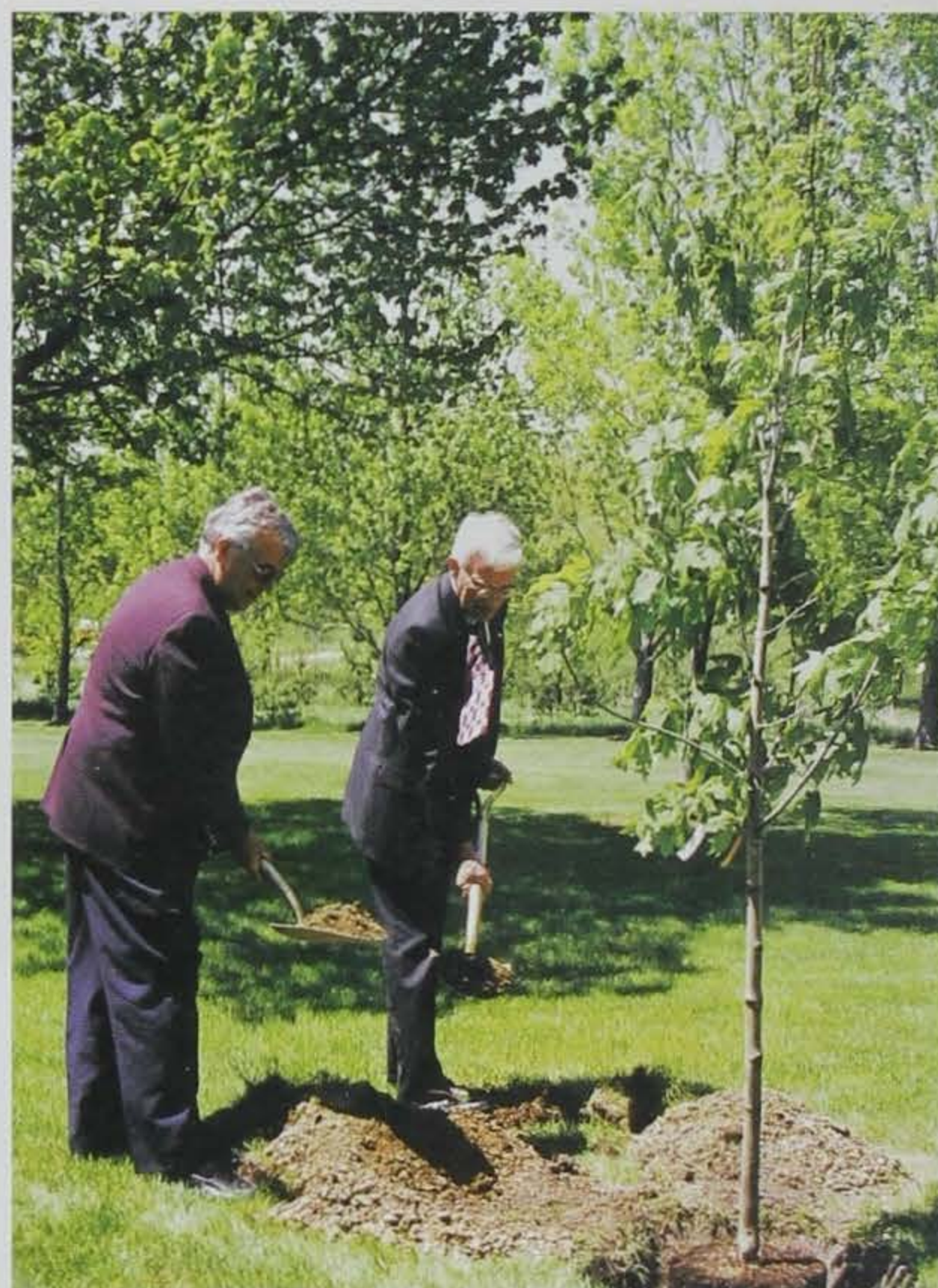
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Former DNR director and current deputy director Larry Wilson, left, and former DOT Director Darrel Rensink finish planting a tree at the southbound Interstate 35 rest area north of Ames during a ceremony in May 1997. The celebration marked the 1,000,000th tree planted under the DOT's Roadside Planting Program. Since then, the number has grown to approximately 1,125,000.



Controlling Weeds With Reduced Herbicide Use

Roadside plantings, in conjunction with refined mowing and herbicide application techniques, have had a beneficial side effect: a reduction in the use of chemicals.

Two years ago, a DOT team was formed to design a plan to reduce chemical use while maintaining or improving the level of weed control. The team collected extensive data on the status of Canada thistle, bull thistle, musk thistle and leafy spurge in 12 northwest Iowa counties. Weeds were marked and counted in specific plots, treated with herbicides, then evaluated again in the spring and fall.

Based on the data, the team was able to suggest ways to reduce the

application rate of herbicides, and thus improve their effectiveness. Since the project began in 1998, the number of acres of noxious weeds in the study area has been reduced from 1,550 in the fall of 1998 to 1,220 acres a year later. The density of weeds in the patches has also been reduced.

Reforesting Iowa

A joint effort between the DOT and DNR has made strides toward reversing the decline of forested land in Iowa. The Roadside Planting Program, which began in 1990,

celebrated a milestone in May 1997 when the 1,000,000th tree was planted at the southbound Interstate 35 rest area north of Ames. Since then, the number has risen to approximately 1,125,000. The pace of new plantings has slowed, explained Mark Masteller, DOT's chief landscape architect, because of limited space for new plantings, and a switch in emphasis to planting native grasses and wildflowers.

Living Snow Fences Improve Safety, Provide Wildlife Habitat

Tree, shrub, wildflowers and native plantings have obvious environmental, habitat and economic benefits, but they also play a valuable safety role on Iowa highways.

"Certain types of plants function

well as living snow fences and wind baffles along the roadways. Plants stabilize banks and block and reflect light glare to minimize eye strain," Masteller said. "Trees also break up the landscape and provide focal points to help reduce the 'hypnotic' effect drivers sometimes experience."

"Living snow fences also reduce snow removal costs by preventing it from drifting onto roadways. Research shows it costs 100 times more to plow snow than it does to trap it with a snow fence. It also improves visibility," said Dennis Burkheimer, winter operations administrator for the DOT's office of maintenance. Living snow fences can be standing corn, native grasses, trees, shrubs or a combination of all.

Studies have shown living fences, which can consist of trees, shrubs, native grasses or corn, significantly lower snow removal costs and reduce the hypnotic effect some motorists experience when driving.



Clay Smith



DOT photo

ABOVE: The DOT works with landowners in areas with continual drifting problems. Many farmers help by leaving standing rows of corn as living snow fences. RIGHT: The Living Roadway Trust Fund uses money from the Road Use Tax Fund and REAP for plantings of native grasses and forbs. These plantings play an important role in providing wildlife habitat.



Ken Formanek

In many cases, landowners are helping create living snow fences on their own land. In areas where drifting of particular concern, the DOT has worked with farmers to leave several rows of standing corn along state highway rights-of-way. More recently, the DOT has been working with landowners to create more permanent living fences.

In Pocahontas County, a first-in-the-state project is using native grasses and wildflowers to create living fences on Iowa Highway 3 west of Gilmore City and Iowa Highway 4, north of where drifting was considered a major problem. The pilot project is the result of a joint venture between the DOT, Pocahontas County Conservation Board, Pocahontas Natural Resources Conservation Service, and landowners.

Each planting is six acres — 100 feet wide by a half-mile long. The first 60 feet of land next to the landowners' fences were planted with short native grasses and wildflowers. The remaining 40 feet were planted with taller prairie grasses (big bluestem, Indian grass and switch grass). The intent is for the taller grasses to stop the snow and the shorter grasses to collect it. The Pocahontas County Conservation Board will help the DOT maintain and manage the area. The plantings must be mowed frequently during the first year for control. After three years, the plants should be established enough to catch snow, adding beauty and benefits year around.

Dan Heissel, director of the Pocahontas County Conservation Board and member of the U.S. 20 Environmental Highway Committee, has presented the concept to the state's Transportation Commission. If this project produces the expected results, similar living snow fences could be used in selected areas throughout the state in place of traditional snow fences, which must be installed and removed every year. These plantings will be more cost-effective, aesthetically pleasing and create habitat for wildlife.

Living Roadway Trust Fund

Grasses and forbs used in the Pocahontas pilot project were purchased through the Living Roadway Trust Fund, which has played a major role in providing more wildlife habitat. The fund was authorized by the Iowa Legislature and established in July

1989 with funding from the Road Use Tax Fund, the Resources Enhancement and Protection (REAP) fund and fees on utility easements along interstate and other divided four-lane, full access-controlled highways.

Since its inception, approximately \$6.8 million has been approved for more than 725 projects across the state. The funds allowed the purchase of special equipment, roadside inventories, gateway plantings, native grass and forb seed, tree and shrub plantings and research, and educational programs.

Trash Removal a Major Beautification Effort

As aesthetically pleasing as tree, native grass and wildflower plantings are, nothing subtracts from the beauty quicker than a roadside littered with trash. Therefore, the DOT has invested more than 19,000 hours per year to remove litter from roadsides. More than 5,000 cubic yards of trash



Highway trash removal by the DOT is aided by the volunteer Adopt-A-Highway program.

have been collected in each of the last 10 years.

The DOT hasn't done it alone. Thousands of cubic yards of trash have been collected through the state's Adopt-A-Highway Program. The program allows Iowans to "adopt" a section of a highway and pledge to keep it clean. The program not only keeps roadsides clean, it promotes environmental awareness, enhances wildlife habitat and allows groups and individuals to complete civic goals. Activities may include litter removal, and planting and maintenance of vegetation. Other activities are eligible with approval from the department. Litter removal is done at least twice a year, or as necessary.

More than 4,000 Adopt-A-Highway permits have been approved by

the DOT, and more than 2,600 are currently active. Since 1991, volunteers have collected more than 31,800 cubic yards of trash – enough to fill nearly 400 medium-duty DOT trucks – in addition to what has been collected by the DOT.

Separating Wildlife and Traffic

Although the DOT understands the importance of creating and protecting wildlife habitat along roads, it also works to keep travelers safe from wandering wildlife, particularly deer. The DOT's office of traffic and

safety has several projects underway to reduce motor vehicle/deer collisions to protect both the deer and the driving public.

A project started last fall on Interstate 35 near Dows is testing the effectiveness of deer fencing along both sides of the road. Steve Gent of

ABOVE: The two-mile stretch of Interstate 35 near Dows has one of the highest rates of deer/vehicle collisions in the state. This past fall, the DOT erected a fence along both sides of the road, testing its effectiveness in controlling accidents. The DNR will be counting the number of deer that go around the ends of the fence or under the Iowa River bridge.



Roger A. Hill



the DOT's office of traffic and safety says the two-mile stretch of highway where the fencing was erected has had one of the highest rates of deer/vehicle crashes in Iowa. The DNR will be conducting research at this site to count the number of deer that go around the ends of the fence or under the Iowa River bridge.

Another study involves an electronic motorist warning system patterned after military method to detect intruders. The project, set to start next spring near Earlville on U.S. 20, will include an electronic fence radar system alerting motorists via a flashing light if a large animal is present near the roadway. This test project is part of a 12-state study, with Iowa having one of four test sites in the nation. The other sites are in Indiana, Oregon and Yellowstone National Park.

A demonstration project to test deer reflectors recently concluded along five roadways: Iowa 9 east of Decorah; U.S. 34 near Viking Lake State Park; Iowa 1 near Lake Darling State Park; Iowa 175 east of Eldora; and Iowa 14 north of Parkersburg. The special deer reflectors were mounted on posts to create an optical fence for deer when headlights reflect off them. This optical fence is not visible to drivers, and unfortunately, apparently not very visible to deer, either. The study revealed the reflectors had very little effect on deer/vehicle crashes at the test sites. In fact, the number of crashes



actually increased at three of the sites. These results are consistent with the results of other states conducting similar tests.

Improving Air Quality

When people think of smog, they often think of cities like Los Angeles and Houston, which routinely make the top 10 list of smoggiest cities. Although air quality in Iowa doesn't draw that level of attention, it is a concern.

Several factors affect air quality. The most significant contributors to smog are tailpipe emissions, power plants and factory emissions. In fact, DNR air quality experts estimate vehicles account for half of all toxic emissions in the state.

In 1991, Congress established the Congestion Mitigation and Air Quality Improvement Program, with each state receiving a guaranteed annual appropriation to address air quality concerns. Out of that legislation the

Vehicles account for an estimated 50 percent of all toxic emissions in Iowa. Park and Ride sites around the state help reduce harmful emissions by promoting carpooling.

DOT created a compatible program, Iowa's Clean Air Attainment Program (ICAAP). The goal is to minimize vehicle emissions by improving traffic flow and reducing miles traveled, single-occupant trips and congestion.

There are numerous ways to reduce vehicle emissions. Traffic flow can be improved by restoring, resurfacing or reconstructing highways. Establishing carpools, expanding bus and rail services, and promoting bicycling and walking can reduce the number of vehicles on the roads, miles traveled and congestion.

Several projects expected to have positive impacts on air quality have been initiated in Iowa in the past two years. The Martin Luther King Jr. Parkway and Indianola Avenue connector in Des Moines will reduce congestion. Buses were replaced in Des Moines, and a vanpool program was started in east-central Iowa. Approximately \$30.6 million was spent on various projects, \$4.7 of which was earmarked for air quality initiatives.

Preserving the Past

Although much emphasis has been placed on natural resources, other resources must also be pro-

ected. Before work begins on any road construction project, steps are taken to ensure the work does not destroy archaeological, cultural and historic resources that paint a picture of Iowa life during earlier times.

To protect the culturally significant historic areas, the DOT contracts with the University of Iowa's Highway Archaeology Program to study cultural resources potentially affected by transportation projects. Other archaeological consultants may also be involved in researching significant sites. Since the studies are conducted early in the planning process, altering project locations late in the planning stages can usually be avoided.

Over the past 10 years, more than 2,200 transportation-related projects and 49,000 acres have been surveyed. In addition, more than 2,800 archaeological sites and 800 buildings or farmsteads have been evaluated. In many instances, these evaluations have allowed highway planners to successfully redesign projects to preserve significant historic properties.

One of the most signifi-

New information about early settlers in Iowa was uncovered during excavations of a pioneer farmstead along U.S. Highway 65 in Jasper County. The "greenhouse-type" structure allowed the dig to continue during all weather conditions.



DOT photo



DOT photo



cant archaeological finds was near the southeastern Iowa town of Wever in Lee County. Three Oneota village sites (occupied about 1300 A.D.) were excavated prior to the construction of the U.S. Highway 61 Wever bypass. The site produced one of the largest and most comprehensive collections of prehistoric American Indian pottery ever excavated in the state.

Storage pits and refuse dumps found within the former American Indian village sites contained the remains of corn, beans, squash and sunflowers, and thousands of animal bones, including the remains of white-tailed deer, bison, waterfowl, fish and mussels. Artifacts were excavated so road construction could

proceed as planned.

When the studies are completed, the artifacts and research notes are turned over to the Office of the State Archaeologist at the University of Iowa for study by scholars.

Other significant archaeological, cultural and historical discoveries in Iowa over recent years include:

- An early 20th-century example of a residential house design was discovered during an architectural evaluation of the historic Proffitt House along Iowa Highway 5 in Marion County. Due to the discovery, highway planners redesigned the project to avoid disturbing the local landmark.
- What is believed to be a prehistoric base camp or extended residence site was found during excavations of several sites within the proposed U.S. 20 relocation corridor within the Iowa River Greenbelt in Hardin County. All sites were recommended for inclusion in the National Register of Historic Places.
- New information about early settlers in Iowa was uncovered during excavations of a pioneer farmstead along U.S. 65 in Jasper County.
- Several late 19th-century scientific instruments were recovered from excavations at the 1878 Kolthoff Cheese Factory, a former cheese and cream-processing site adjacent to U.S. 63 in Chickasaw County.

- A rare surviving example of mid-19th century agriculture architecture was revealed during studies of an early settlement along U.S. 34 in Henry County. Found was the core of a preserved 1840s hewn timber-frame threshing barn, built inside an expanded 1890s heavy timber frame general purpose barn.

- An unmarked cemetery, with burials dating back as early as 1836, was located and protected near the Mount Pleasant bypass in Henry County.

Equal Treatment for American Indians

When new highway corridors are proposed, studies are conducted to identify and protect American Indian artifacts and burial grounds. All potential sites are investigated to determine cultural significance and if they are eligible for National Register of Historic Places, according to Harry Budd, recently retired director of the DOT's office of corridor development. Areas that don't qualify for the Register, and which cannot be avoided, are excavated and the artifacts preserved.

American Indian burial grounds are avoided at all costs. In fact, no burial ground has been disrupted within the past decade. When burial grounds are discovered, they are purchased by the state for preservation.

On matters involving American Indian artifacts or burial grounds, the DOT works with the American Indian tribal organizations through the

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Color
City

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Cedar

Macbride

Shueyville

Swisher

E. Amana

High Middle
Amana Amana

West

Amana Colonies



DOT photo

The U.S. 20 bypass at Dike created this 40-acre lake and many recreational opportunities. The borrow pit is now the largest water body in Grundy County.

governor's American Indian representative, Maria Pearson. Through Pearson the DOT is able to communicate with the leaders of the 32 tribes that once occupied Iowa.

Ponds — A Benefit of Road Construction

When certain highway projects are constructed, significant amounts of soil are needed to build bridge embankments and roadbeds. Soil excavation often leaves large holes in the ground. As unsightly as they may be, in time they can produce additional recreation opportunities to several thousand Iowans.

When the sites, commonly called borrow pits, cannot be reclaimed to their original use, they are often converted to ponds. The ponds may be turned over to state, county or local agencies, or conservation organizations to manage. In many cases they are developed into recreational parks, which when properly stocked and managed, can produce exceptional fishing opportunities.

A borrow pit created during construction of a portion of U.S. Highway 218 in Floyd County, known as the

Avenue of the Saints, provided residents of Rudd with a small pond. The surrounding area will also be developed into a 30-acre city park. According to Sandy Moore, chairman of the Rudd Park Board, the park will be constructed as funding permits.

"Last year we received a grant from the Department of Natural Resources for a boat ramp, which is finished. We have a grant from the DOT for \$88,000 for a recreational trail. The city put in \$17,000 and we should be able to build it next year with planning help from the Floyd County engineer," said Moore.

Landscaping around the pond was expedited when the DOT's truck weigh scales in Floyd County were expanded.

"The DOT had a lot of trees that needed to be moved, so we were able to move them to the park," Moore said. "Once the recreational trail is finished, we'll move them around the lake."

In the Grundy County community



Roger A. Hill

Trumpeter swans once thrived in Iowa, but unregulated hunting and habitat destruction extirpated them from the state in the late 1800s. Today, a borrow pit located west of Ames off of U.S. 30 has become home to a trumpeter swan family.

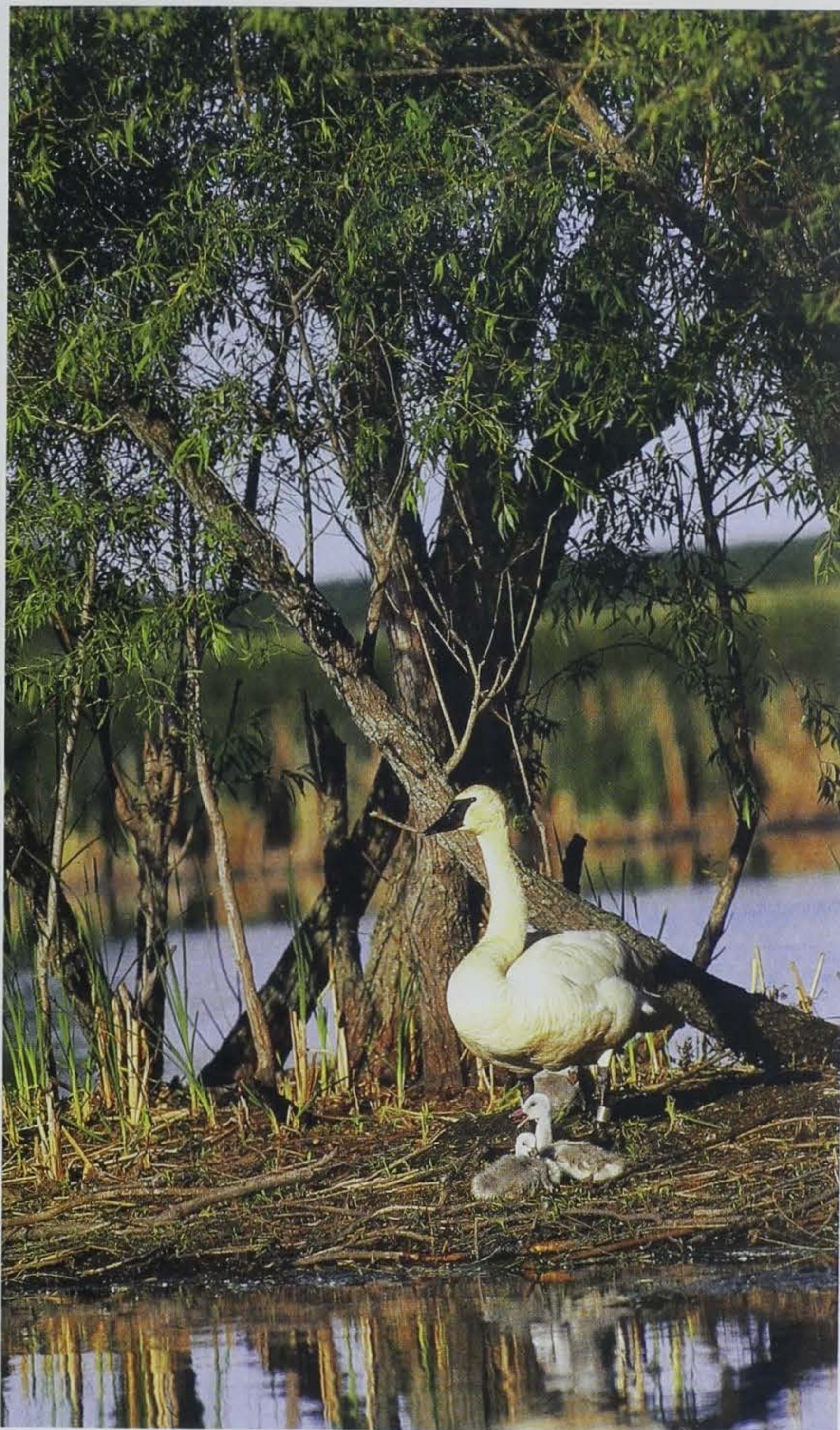
of Dike, construction of the U.S. 20 bypass of the city created a 40-acre lake for fishing, trail development and other recreational opportunities. Improvements are expected to take five to 10 years to complete, however the site is currently the largest body of water in the county.

Borrow Pond Used for Trumpeter Swan Restoration

One borrow site in central Iowa is helping restore a migratory bird extirpated from the state more than a century ago.

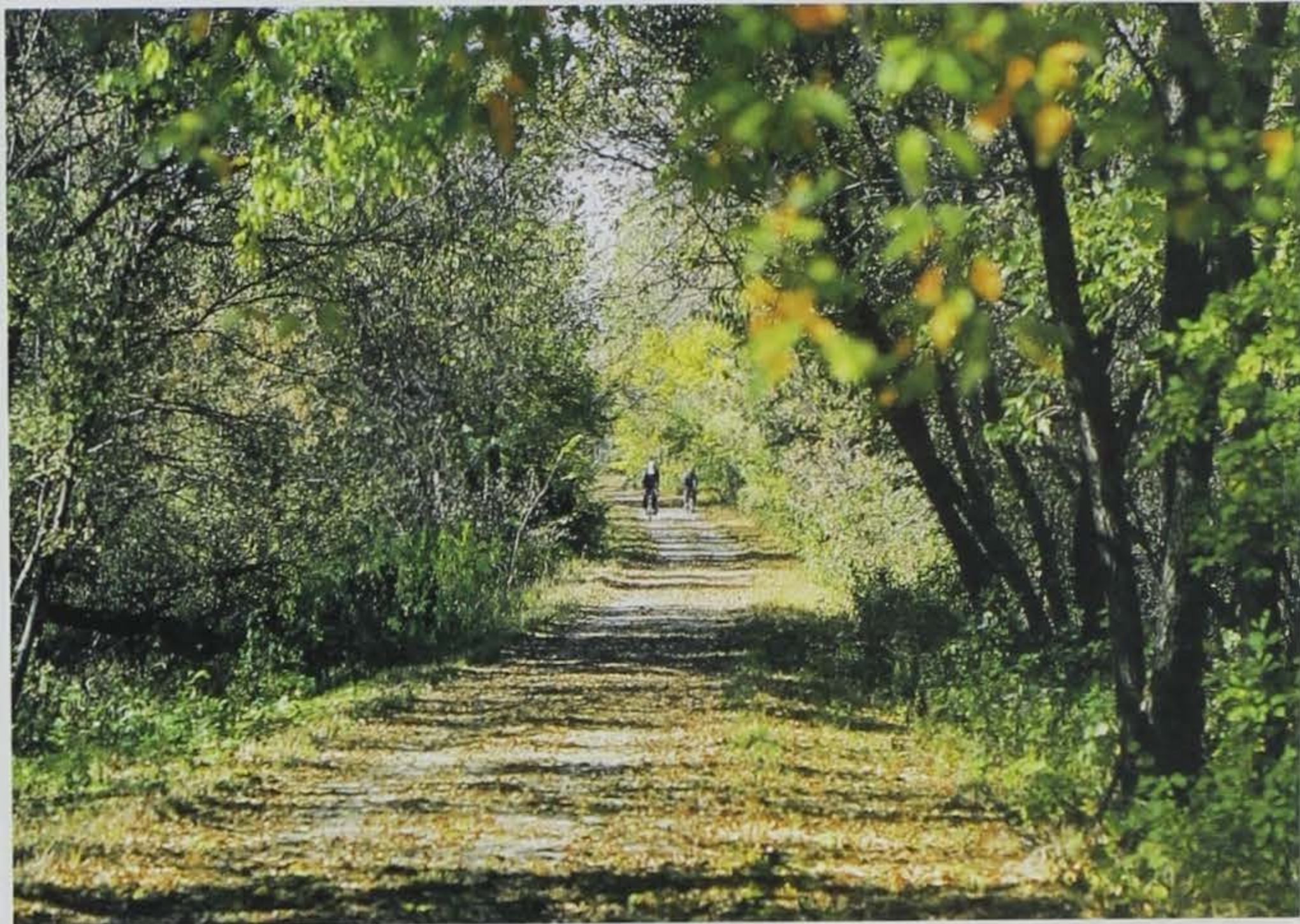
Trumpeter swans were once common across the United States, but the species was nearly wiped out in the late 1800s by unregulated hunting and habitat destruction. The largest of North America's waterfowl, they are extremely sensitive to human intervention and development in or near their habitats. A limited number of suitable habitats remain in Iowa.

One site considered suitable, however, was a borrow area just west of Ames on U.S. Highway 30 and Lincoln Way. The fenced, shallow marsh was thick with cattails, reeds, native prairie grasses and scrub trees. Aquatic plants, the swan's main food source, were also plentiful. Although the area was



Roger A. Hill

The DOT's involvement in multi-use trails began in 1987 with a legislative directive to plan the acquisition, development, promotion and management of recreation trails with national, statewide or multi-county significance. The plan calls for a nearly 3,000-mile network of trails in the state.



Ken Formanek

nestled between two highways, it was secluded. Due to its potential as waterfowl habitat, a partnership was established between the DOT and DNR to preserve the site as a sanctuary for trumpeter swans.

Thanks to one Iowa family, it didn't take long for the first trumpeters to arrive.

Cheri Davison was an animal science major and active in Iowa State University's Trumpeter Swan Restoration program when she was killed in a car/train wreck in January 1995. Working in cooperation with the DNR and the DOT, the Davison family funded the purchase of two trumpeter swans in memory of their daughter.

The swans were released at

the Ames borrow area. However, since swans require open water year around to forage for aquatic plants, the pair had to be relocated to Swan Lake in Carroll County each year before the borrow pond froze over. That is no longer necessary. The Davisons purchased an aeration system for the borrow pit, providing the swans with open water year around. The family, with help from friends, eventually purchased the borrow site from the state and donated it to the Boone County Conservation Board for long-term management.



Ken Formanek

Trails Gain Growing Emphasis in Transportation

While highways, railroads and airplanes are the traditional methods of travel, multiuse trails are rapidly gaining in popularity. They provide a means of transportation, as well as recreation. Whether in a pristine natural setting or urban downtown area, trails frequently receive heavy use as soon as they are built. Federal, state and local government agencies, along with numerous neighborhood groups, are working to develop a system of multiuse trails connecting urban, recreation and cultural areas.

The DOT's statewide trail planning began in 1987 when the Iowa Legislature directed the department to develop a comprehensive trails plan. Under the directive, the DOT was responsible for planning the acquisition, development, promotion and management of recreation trails with national, statewide or multi-county significance. In 1990, the Iowa Statewide Recreational Trails Plan was completed. Plan developers considered existing trails and used a variety of evaluation methods to identify and prioritize potential trail corridors. The plan called for a 2,982-mile network, 400 of which had already been completed by 1990.

The 1990 plan dealt primarily with trail planning. It outlined the process of selecting and prioritizing trail corridors, mapping their general location and establishing construction guidelines. The current plan, Iowa Trails 2000, goes beyond that by providing resources state, regional

and local planners can use when designing and building trails. It provides a framework for implementing the statewide trails vision, provides guidance for trail system planning, helps the public understand the benefits of trails, and establishes design guidelines to encourage consistency in quality and design of trails statewide.

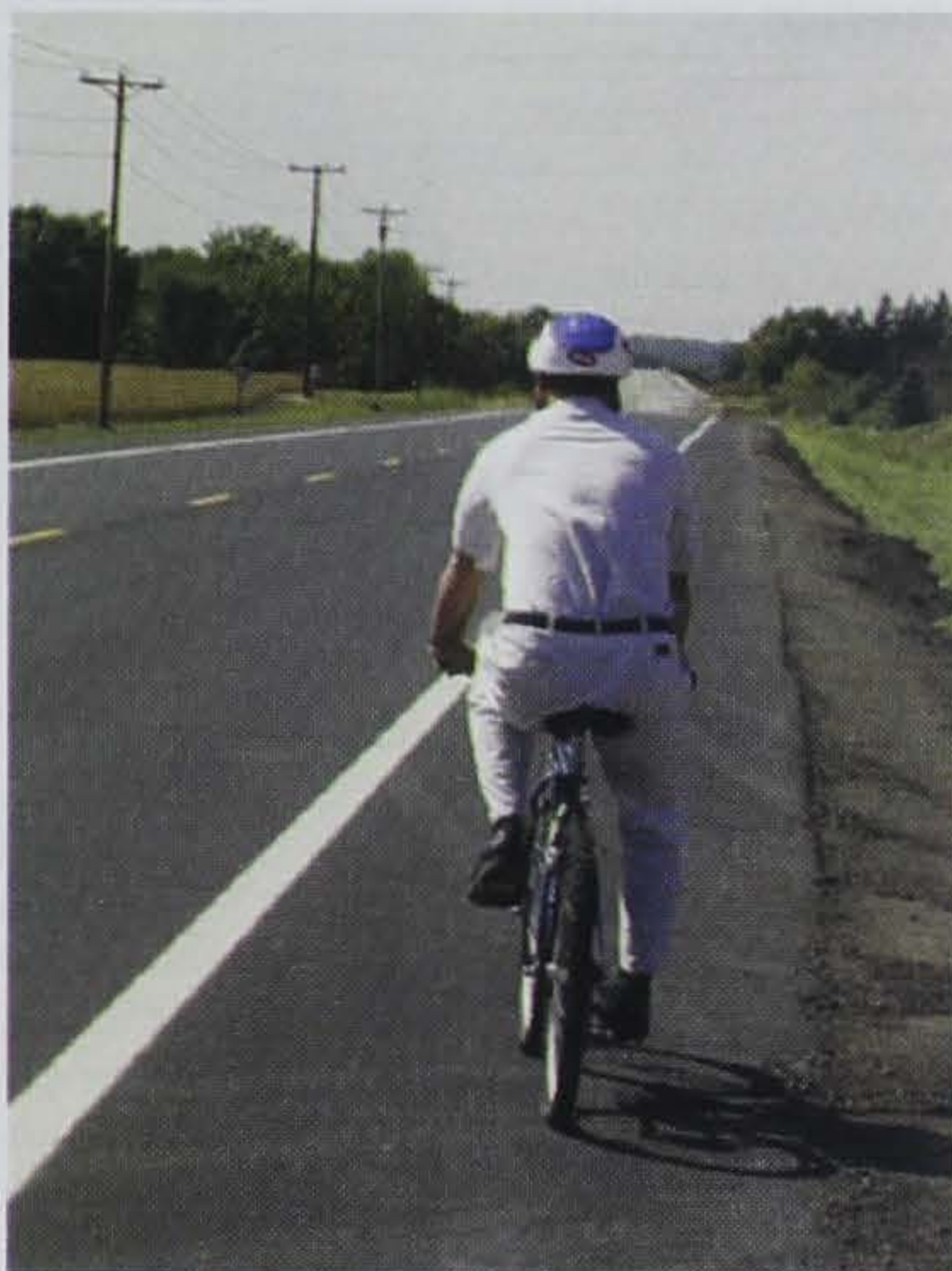
Multiuse Trails Becoming Part of Highway Projects

Although the DOT has been involved in helping fund off-road, multiuse trails for many years, the Iowa Transportation Commission recently approved the department's Bicycle and Pedestrian Accommodation Guidance, setting guidelines for incorporating trails in highway construction projects. All new construction projects will be evaluated to determine if the inclusion of a trail is feasible.

The new guidelines were used in the U.S. Highway 63 project north of Oskaloosa to the south side of New Sharon, which will include paved shoulders to accommodate bicyclers. The Mahaska Community Recreation Foundation and local Regional Planning Affiliation each committed \$200,000 to the project.

The trail will connect to a 15-mile

Under new guidelines, all new road construction projects will be evaluated for possible bike/pedestrian trails. The U.S. Highway 63 project near New Sharon included a paved shoulder for bicyclers.



DOT photo

At least 10 percent of Iowa's federal transportation funds are dedicated to enhancement projects, including restoration of historic transportation buildings such as this railroad depot in Independence.



DOT photo

loop in Oskaloosa, which is currently under construction. When completed, it will connect New Sharon with the Oskaloosa trail, passing several businesses, the county conservation center, a pioneer farm and other attractions along the way. It could eventually connect with Pella's trail system, through Red Rock Reservoir and possibly to Lake Rathbun.

Transportation Enhancements Assist Many Projects

Federal legislation passed in 1998 requires transportation enhancement activities to be part of the Statewide Transportation Improvement Program. The act requires at least 10 percent of each state's federal surface transportation funding be designated for enhancement projects. Transportation enhancement activities include:

- facilities for pedestrians and bicycles;
- acquisition of scenic easements and scenic or historic sites;
- scenic or historic highway programs, including tourist and welcome centers;
- landscaping and other scenic beautification, including removal of graffiti;
- historic preservation;
- rehabilitation and operation of historic transportation buildings, structures or facilities, including historic railroad facilities and canals;
- preservation of abandoned railway corridors for pedestrian or bicycle trails;
- control and removal of outdoor advertising;
- archaeological planning and research;

• mitigation of water pollution due to highway runoff, including projects that reduce vehicle-caused wildlife mortality while maintaining habitat connectivity;

- safety and educational activities for pedestrians and bicyclists; and/or
- establishment of transportation museums.

The Iowa Transportation Commission has determined half of the enhancement funding must be allocated to local metro and regional planning groups. The remainder is used for DOT projects of statewide significance. In the past two years, the commission has approved funding for more than 20 enhancement projects, including:

- protection of the Great River Road and Loess Hills Scenic Byway priority areas;

- extension of the Raccoon River Valley Trail in Dallas County; and
- construction of the Iowa 330 recreational trail in Marshall County.

Enhancement programs can also be conducted by local governments. In Story County, 5-foot-wide asphalt shoulders were installed along a county road between Ames and Nevada, and were painted according to bike path standards. The project was funded with approximately \$200,000 from regional transportation enhancement funds from the Central Iowa Regional Transportation Planning Alliance and nearly \$137,000 from Story County, Ames and Nevada.

Environmental Improvement Integral to DOT's Day-to-Day Operations

Day-to-day operations are also carried out with the environment in mind. Bio-based products such as BioSOY, Cure & Seal, ethanol, methyl glucoside, soy ink and Ice Ban are used whenever possible.

BioSOY, a soy-based hydraulic oil, is used in some DOT equipment, replacing petroleum-based oil. The DOT has been using BioSOY since 1998 when the Iowa Legislature passed a bill encouraging state agencies to buy and use biodegradable

crop oils in government vehicles and equipment. The following year legislators awarded the DOT \$15,000 to use soy-based hydraulic oil.

BioSOY is safer for the environment, reduces long-term liability risks and lessens costly disposal requirements

Soy is also being used as fuel for DOT equipment. "In the past few years, the legislature has provided funding for four projects in which we mixed a soy additive with our diesel fuel," said Carol Coates, director of the DOT's office of procurement and distribution. "The first project was a 20 percent mix at the Boone shop for one year. The second funding cycle provided a 5 percent mix at about 20 sites with underground tanks. Last year every garage with a fuel storage tank received one shipment of the soy additive. Current funding permits the Boone and Leon maintenance facilities to use a 20 percent mix."

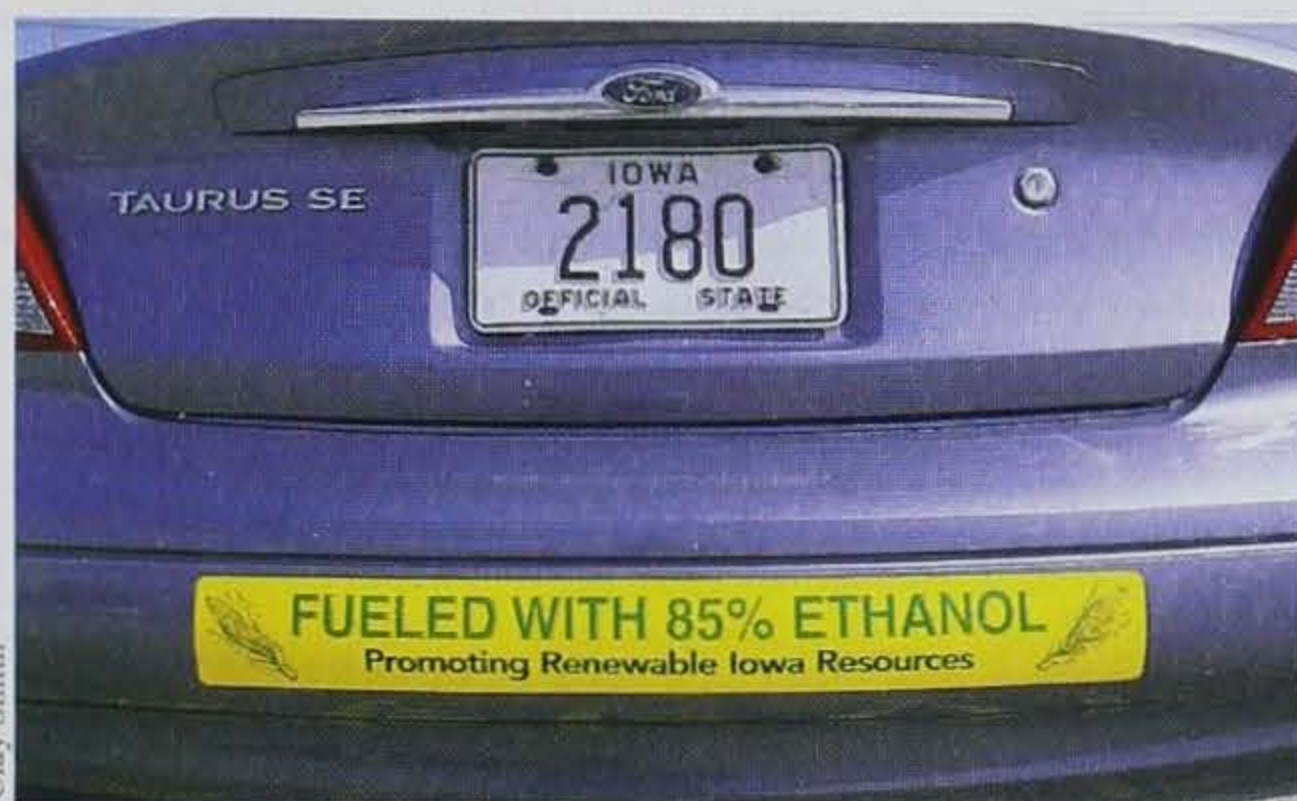
Cure & Seal is a soy-based concrete preservative sprayed on concrete barriers when they are first built. It aids curing by trapping moisture so the concrete doesn't dry too quickly and crack. Cure & Seal

also is designed to repel outside water, which contributes to cracking due to de-icing salt, and freezing and thawing

Given the DOT's fleet of vehicles and heavy equipment, and long hours spent on the roads, the costs and effects of fuel consumption are a big concern. It also provides a chance to make choices that benefit Iowa and the environment. For example, every gasoline-powered DOT vehicle can operate on E10, a 10 percent ethanol fuel. Many are flex-fueled, meaning they can operate on E10 or E85 fuel, an 85 percent ethanol/15 percent gasoline mix. In the past year, DOT vehicles consumed about 1.8 million gallons of E10 and 25,000 to 29,000 gallons of E85.

Ice Ban, an anti-icing and de-icing agent, is being tested at 10 maintenance garages. Made from a liquid residue of processed grains and agricultural products, it is mixed with salt and sand or salt brine to improve melting, lower the temperature at which salt or sand will freeze, and reduce vehicle and equipment damage resulting from salt corrosion. The

All DOT vehicles using gasoline can operate on a mixture of 10 percent ethanol or E10. Many are flexible fuel vehicles, capable of using an 85 percent ethanol/15 percent gasoline mix or E85. In the past year, DOT vehicles consumed about 1.8 million gallons of E10 and 25,000 to 29,000 gallons of E85.



Clay Smith

As part of the DOT's public outreach program, environmental information is being distributed to Iowa schools, and a kids' cyber club has been created. Enviro-Explorers is geared to kids who care about the relationship between transportation and the environment, and want to learn how they can help protect Iowa's resources. The club's website is www.enviro-explorers.com.



department continues to test Ice Ban while waiting for the results of environmental tests before expanding its use. The cost of Ice Ban will also be a factor in determining its future use.

A fairly new product, methyl glucoside (MeG), is also being tested at the Muscatine maintenance garage. Made from the starch of corn kernels, tests by the U.S. Air Force and others have shown it works well as a de-icer for aircraft, runways, bridges and roadways. The product is produced and distributed by Grain Processing Corporation in Muscatine.

Like other state agencies, the DOT relies on recycled paper and soy ink. About 90 percent of the 375,000 pounds of paper used at the DOT each year, including toilet tissue and paper hand towels, has a minimum

percentage of recycled paper in it. The department uses approximately 1,500 pounds of soy ink per year. Other recycled products used include wood pallets and mulch for roadside vegetation management.

Public Outreach Program

Along with its growing emphasis on the environment, the department has stepped up its education outreach efforts. The DOT's office of media and marketing services developed "EcoLogical Transportation" as the theme for the department's multi-year communications plan. The plan is designed to inform Iowans about the DOT's successful environmental protection and enhancement efforts.

Environmental information is being distributed to Iowa schools, and a kids' cyber club has been created.

Enviro-Explorers is geared to kids who care about the relationship between transportation and the environment, and want to learn how they can help protect Iowa's resources. The club's website, www.enviro-explorers.com provides the latest news and activities about transportation and the environment, and fun activities and projects kids can do on their own.

Although DOT's trucks haven't been painted green, protecting and enhancing the environment will continue to be an increasingly larger part of the department's everyday activities.

Jerry Dickinson is an information specialist for the Department of Transportation in Ames.

Iowa 2001-2002 Hunting Seasons and Bag Limits

SPECIES	SEASON	SHOOTING HOURS	BAG LIMITS	
			DAILY	POSSESSION
Youth Rooster Pheasant (age 15 or younger)*+	Oct. 20-21	8:00 a.m. to 4:30 p.m.	1	2
Rooster Pheasant	Oct. 27 - Jan. 10, 2002		3	12
Bobwhite Quail	Oct. 27 - Jan. 31, 2002		8	16
Gray Partridge	Oct. 13 - Jan. 31, 2002		8	16
Turkey (Gun)*	Oct. 15 - Nov. 30	One-half Hour Before Sunrise to Sunset	One Turkey Per License	One Turkey Per License
Turkey (Bow Only)*	Oct. 1 - Nov. 30 and Dec. 17 - Jan. 10, 2002	One-half Hour Before Sunrise to One-half Hour After Sunset		
Deer (Bow)	Oct. 1 - Nov. 30 and Dec. 17 - Jan. 10, 2002		One Deer Per License	One Deer Per License
Deer (Muzzleloader)	Oct. 13 - Oct. 21* (early) or Dec. 17 - Jan. 10, 2002 (late)			
Deer -- Youth (age 12-15) and Severely Disabled	Sept. 22 - Oct. 7			
Deer (Shotgun)	Dec. 1 - 5 (first) or Dec. 8 - 16 (second)			
Ruffed Grouse	Oct. 6 - Jan. 31, 2002	Sunrise to Sunset	3	6
Rabbit (Cottontail)	Sept. 1 - Feb. 28, 2002		10	20
Rabbit (Jack)	Oct. 27 - Dec. 1		2	4
Squirrel (Fox and Gray)	Sept. 1 - Jan. 31, 2002	None	6	12
Groundhog	June. 15 - Oct. 31		None	
Crow	Oct. 15 - Nov. 30 and Jan. 14 - March 31, 2002			
Pigeon**	Oct. 1 - March 31, 2002			
Raccoon and Opossum	Nov. 3 - Jan. 31, 2002	None	(Open 8 a.m. First Day Only)	
Fox (Red and Gray)	Nov. 3 - Jan. 31, 2002			
Coyote	Continuous Open Season			
		None		

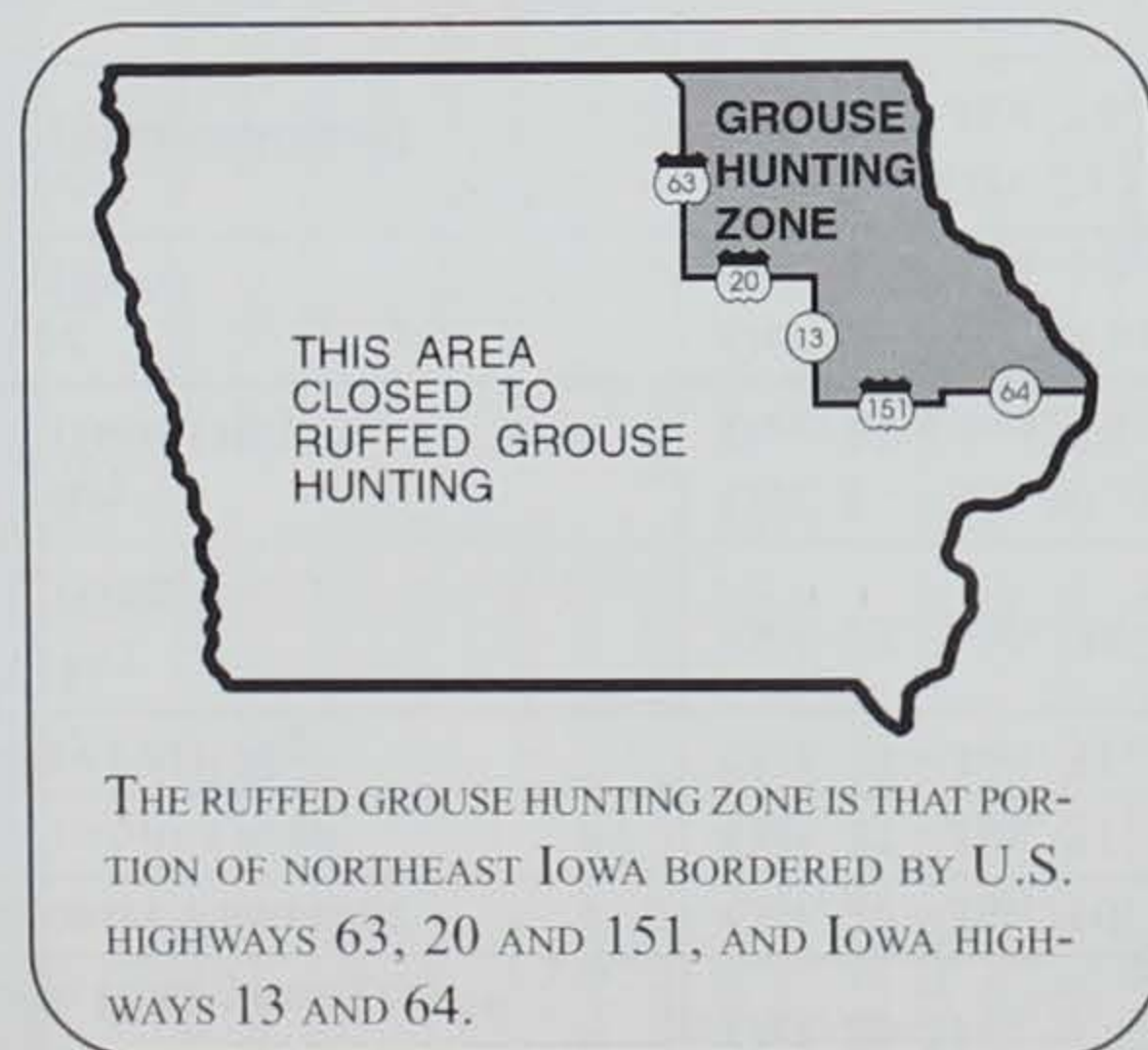
* Residents Only. **

2001-2002 TRAPPING SEASON

SPECIES	OPENING	CLOSING
Mink, Muskrat*, Raccoon, Weasel, Striped Skunk, Badger, Opos- sum, Fox (Red and Gray), Coyote	Nov. 3, 2001	Jan. 31, 2002
Beaver	Nov. 3, 2001	April 15, 2002
Civet Cat (Spotted Skunk), Bobcat and Otter	Continuous Closed Season	
Groundhog	June 15, 2001	Oct. 31, 2001

ALL FURBEARER SEASONS OPEN AT 8 A.M. ON THE OPENING DATE. THERE ARE NO DAILY BAG OR POSSESSION LIMITS

*SELECTED AREAS MAY BE ESTABLISHED IN FEBRUARY FOR MUSKRAT TRAPPING ONLY.



2001-2002 Hunting Licenses and Fees

RESIDENT

Resident Hunting	\$13.00
Lifetime Combination (disabled military veteran or P.O.W.)	\$31.00
Lifetime Hunting License (65 years of age or older)	\$51.00
Deer License	\$26.00
Turkey License	\$23.00
Fur Harvester License	

Resident age 16 and older \$21.00

Resident under age 16 \$6.00

Wildlife Habitat Fee \$6.00

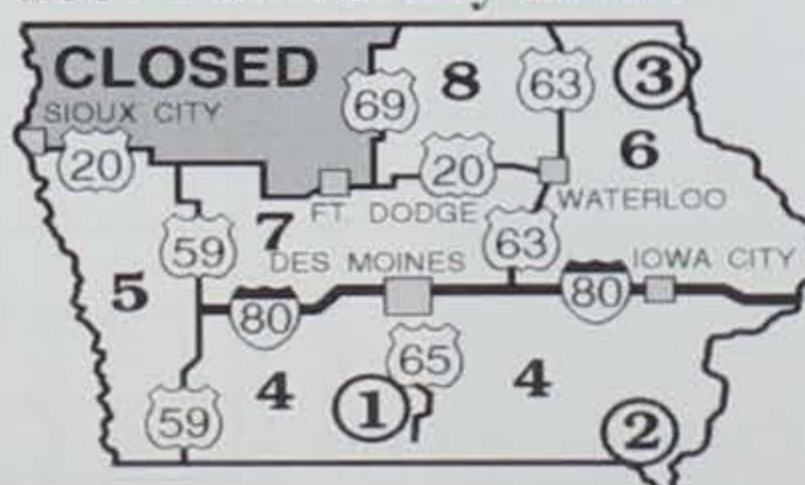
Migratory Game Bird Fee \$6.00

Annual free Fishing or Combined Hunting and Fishing licenses are available for low income 65 or older and low income permanently disabled. Call 515/281-8688 for information/qualifications.

NONRESIDENT

Nonresident Hunting Preserve	\$6.00
Nonresident Hunting (18-years-old or older))	\$61.00
Nonresident Hunting (under 18)	\$26.00
Nonresident Fur Harvester	\$181.00
Wildlife Habitat Fee	\$6.00
Migratory Game Bird Fee	\$6.00
Nonresident Deer License	\$151.00
Nonresident Turkey License	\$76.00

2001 Fall Turkey Zones



Fall turkey season is closed to nonresidents in 2001.

ZONE 1 is all units of Stephens State Forest west of U.S. Highway 65 in Lucas and Clarke counties.

ZONE 2 is all units of Shimek State Forest in Lee and Van Buren counties.

ZONE 3 is units of Yellow River in Allamakee County.

BOW-ONLY fall turkey licenses are valid statewide.

***PROPOSED* 2001-2002 MIGRATORY GAME BIRD SEASONS AND BAG LIMITS**

STATEWIDE		
Ducks, Mergansers and Coots	Sept. 22-26 Oct. 13 - Dec. 6	
Youth Waterfowl Hunting Days	Oct. 6-7	
Light Geese (snow [both white and blue phase] and Ross' geese)	Sept. 29 - Jan. 13, 2002 Feb. 2 - April 15, 2002	
Woodcock	Oct. 6 - Nov. 19	
Snipe	Sept. 1 - Nov. 30	
Rail (Sora and Virginia)	Sept. 1 - Nov. 9	
	NORTH ZONE	SOUTH ZONE
Canada, White-fronted and Brant geese	Sept. 29 - Dec. 7	Sept. 29 - Oct. 21 Nov. 10 - Dec. 26

Shooting Hours: One-half hour before sunrise to sunset for all species except woodcock, which is sunrise to sunset.

Daily Bag and Possession Limits:

Ducks: Daily limit is 6, including no more than 4 mallards (of which no more than 2 may be female), 2 wood ducks, 2 redheads, 1 black duck, 1 pintail, 3 scaup and 1 canvasback. Possession limit is twice the daily bag limit.

Mergansers: Daily limit is 5, including no more than 1 hooded merganser. Possession limit is twice the daily bag limit.

Coots: Daily limit is 15; possession limit is 30.

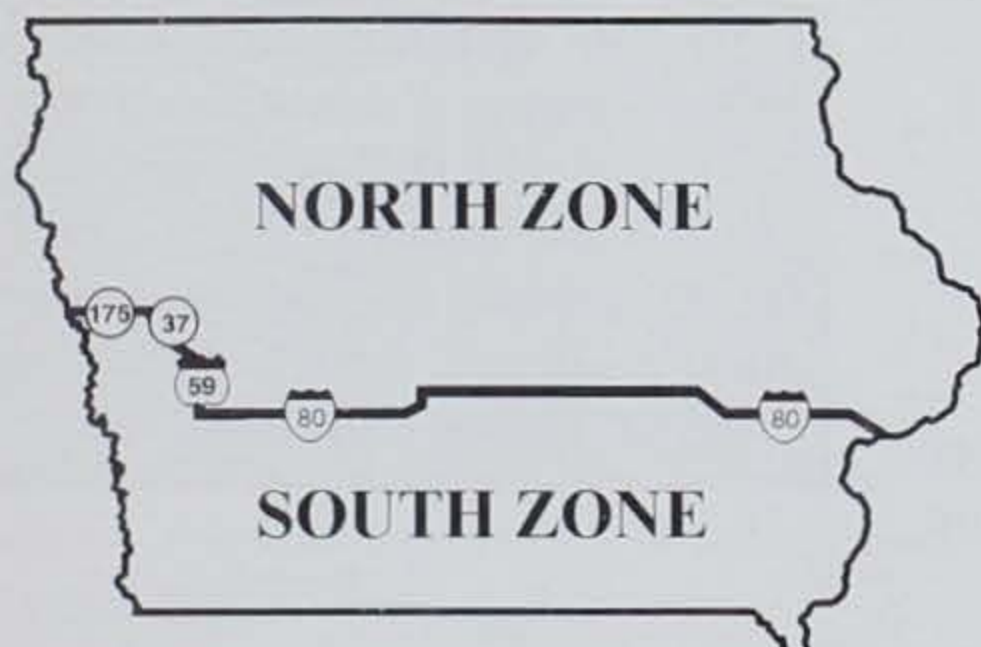
Geese: Daily limit for Canada geese is 2. For other geese, the daily limit is 2 white-fronted, 2 brant and 20 light geese (both white and blue phase snow geese and Ross' geese). Possession limit is twice the daily bag limit, except for light geese for which there is no possession limit.

Woodcock: Daily limit is 3; possession limit is 6.

Snipe: Daily limit is 8; possession limit is 16.

Rail (Sora and Virginia): Daily limit is 12; possession limit is 24.

Youth Waterfowl Hunting Days: Shooting hours and daily bag limits will conform to those set for the regular waterfowl seasons.



Waterfowl zone description. The state will be divided by a line beginning on the Nebraska-Iowa border at State Highway 175, east to State Highway 37, south-east to U.S. Highway 59, south to I-80 and along I-80 east to the Iowa-Illinois border.

NONTOXIC SHOT ONLY

You cannot have in your possession any shotshell loaded with anything other than nontoxic shot approved by the U. S. Fish and Wildlife Service (USFWS) when hunting any migratory game birds, except woodcock, on any land or waters of the state of Iowa. Approved nontoxic shot must be used to hunt all game animals or furbearers, except deer and wild turkey, on selected public hunting areas in north-central and northwest Iowa. See the "2001 Hunting, Fishing and Trapping Regulations" for details. Nontoxic shot currently approved by the USFWS includes: **STEEL, BISMUTH-TIN, TUNGSTEN-IRON, TUNGSTEN-POLYMER, TUNGSTEN-MATRIX** and **TUNGSTEN-NICKEL-IRON**. The USFWS has approved **TIN** shot for 2001, but not for 2002 as of yet.

MIGRATORY GAME BIRD STAMPS AND FEES REQUIRED

If you are 16 years of age or older, you need to pay the **state migratory game bird fee** (\$6) and possess a **federal** (\$15) **migratory waterfowl stamp** (duck stamp) to hunt or take any migratory waterfowl within Iowa. State migratory game bird fees can be paid at any Electronic Licensing System for Iowa (ELSI) sales agent. Federal stamps can be purchased at post offices.

YOUTH WATERFOWL DAYS

Hunters ages 15 or younger may hunt certain waterfowl without a hunting license, federal duck stamp or payment the state habitat or migratory game bird fees during Youth Waterfowl Days, Oct. 6-7, 2001. The youth hunter must be accompanied by an adult 18 years of age or older. The adult must have a hunting license and habitat stamp if normally required to do so to hunt waterfowl, and have paid the state migratory game bird fee. The adult may not hunt ducks but may hunt other game birds if there is an open season. The bag limit is six ducks for the youth hunter only, with the same species restrictions as the regular duck season; two Canada geese and 15 coots. Possession limit is twice the daily bag limit.

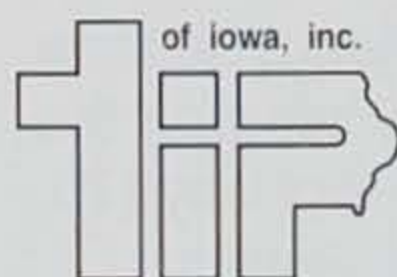
The 2001-2002 Upland Game Bird and Waterfowl Seasons and Bag Limits can be downloaded from the DNR's Fish and Wildlife website at www.state.ia.us/dnr/fwddiv. Follow the prompts to the upland game bird or waterfowl seasons and bag limits pages.

Did you shoot a
banded duck or goose?

Call

1-800-327-BAND (2263).

**Reporting the harvest of banded waterfowl
provides valuable information which helps
sustain populations and hunting for the future.**



POACHING is a CRIME!
Turn In Poachers
1-800-532-2020

**Final season dates and bag limits will be determined after
federal guidelines are released in August. Final dates and
limits will be published in September.**

HIP

(Harvest Information Program)

All migratory game bird hunters must register with the U.S. Fish and Wildlife Service's Harvest Information Program (HIP) each year and carry proof of registration while hunting. Hunters must register in each state they hunt. In Iowa, hunters are automatically registered with HIP upon payment of the state migratory game bird fee. Payment of the fee is indicated on the license, which serves as proof of having registered.

Governor's Iowa Environmental Excellence Awards

Iowa's environment is in the hands of every community, business, organization, farmer and citizen. Many innovative Iowans are leading the way in the protection and enhancement of our natural resources. Their actions deserve the highest recognition.

Now is the time to apply for the 2001 Governor's Environmental Excellence Awards. Governor Tom Vilsack and the State of Iowa invite organizations, businesses and individuals to be recognized for their leadership and innovation in managing our state's natural resources. Innovative, result-orientated strategies can take many forms, including:

- Developing energy efficiency or renewable energy technology
- Creating new technologies or processes that improve the environment
- Reducing waste generation
- Creating natural resource protection and enhancement projects, such as watershed protection
- Establishing educational or prevention programs that result in environmental improvements
- Creating programs or processes that balance economics with the environment

Who Can Apply:

- Community/Local Government
- Large Business and Industry (More than 200 employees)
- Small Business and Industry (Up to 200 employees)
- Institution/Public Sector Facility (hospital, school, college, etc.)
- Agriculture (operation, farm or other ag-related business or organization)
- Service/Civic/Nonprofit Organization (Kiwanis, Lions Club, Pheasants Forever, etc.)
- Youth Organizations (4-H Chapters, Boy/Girl Scouts chapters, FFA Chapters, etc.)

In addition to the six award areas for each type of organization, a special award has been established for individuals who have provided exemplary leadership in natural resource conservation. The awards are sponsored and coordinated by the Governor's Office, the Iowa Department of Natural Resources, the Iowa Department of Agriculture and Land Stewardship, the Iowa Department of Economic Development, the Iowa Department of Education, the Iowa Department of Public Health and the Iowa Waste Reduction Center.

Deadlines:

Applications are due by September 28, 2001.

Awards will be announced and presented in December 2001.

To Obtain an Application:

Download an application from www.state.ia.us/dnr

For more information contact:

Bob Castelline at (515) 281-0789;
email:

Bob.Castelline@dnr.state.ia.us

or Katie Nevins at (515) 281-8655;
email:

Katie.Nevins@dnr.state.ia.us

Green Valley State Park: Southwestern Iowa's Little Secret

By Mike Schrader

It wasn't too many years ago the most frequently asked question regarding Green Valley State Park was "Where is it?" Today, it's one of the busiest parks in the state.

If you are not one of the more than 100,000 people who visit Green Valley each year, the park is located in southwest Iowa, approximately three miles north of Creston on highway 186. It's one of the most popular parks in the state, and is in fact one of the 10 busiest.

Green Valley State Park has a unique history involving three entities responsible for its creation.

In 1949, Iowa leaders were looking for an area to build a lake that would fit the Conservation Commission's goal of having a state-owned lake within 25 miles of all Iowa citizens. The future site of Green Valley near the head of the Platte River filled a void that had existed for many years. At the time, the lake was no more than 75 miles and as close as 45 miles to seven lakes. Today that number has grown to 14.

The Iowa Conservation Commission was interested in the lake for its obvious recreational potential. Two other groups were equally interested, although for entirely different reasons.

Creston residents vividly recalled the intense drought of 1934. Summit Lake, the city's water supply, had nearly dried up. City leaders were searching

Clay Smith

for an emergency water source to turn to during future droughts. Therefore, the city contributed \$100,000 to the development of the lake.

Southwestern Federated Power Cooperative wanted to build a steam turbine electric generating plant north of Creston. It also needed a water source, so the cooperative contributed \$125,000 toward the project.

Along with \$301,640 from the state, the Green Valley State Park project was born. On Sept. 23, 1953, four short years later, Green Valley State Park was dedicated.

The name "Green Valley" was chosen from 538 entries in a "name the lake" contest sponsored by the Creston Chamber of Commerce. The winning entry, submitted by Lena Simpson, was selected by the commission over "Rainbow Lake" and "Blue Grass Lake," the second and third place entries.

Today, the 100,000 plus annual visitors to Green Valley State Park enjoy the many recreational opportunities the lake has to offer. Water skiing has been allowed on the west arm of the lake since 1970. Four boat ramps and docks are located around the lake, with several additional

docks within the campground. Jet skis and inboard motors are not permitted.

Green Valley Lake is well known by anglers for its excellent crappie, largemouth bass and channel catfish angling. The lake is surrounded by 12 miles of trails, providing bank fishing opportunities along the entire shoreline. A 22-inch minimum length limit on largemouth bass was established to create a trophy bass fishery. The restriction has also lead to a healthy panfish population, since bass serve as a key population control measure.

Many visitors consider Green Valley's modern camp-

ground second to none. Its central location to other recreational opportunities in the park contributes to its popularity. The campsites offer a view of the lake and easy access to boat docks.

The campground is also within a short walk of the beach and playground. Hiking trails wind through the 600 acres of mixed prairie and woodlands surrounding the lake.

Special programs are planned at the youth group camping area throughout the summer. Visitors can check with park staff to determine when programs will be offered. During the summer, a naturalist



Clay Smith

Green Valley is well known among anglers, especially largemouth bass anglers. A 22-inch minimum length limit ensures any legal bass taken from the lake is a trophy.

PARKS PROFILE

will present programs on a variety of outdoor topics.

Near the campground, Park Ranger Mark Sedlmayr put his carpentry skills to work building two recently completed sleeping cabins. Both comfortably accommodate four persons and are equipped with several amenities. A separate boat dock is provided for the cabins and a fish cleaning station is located nearby. Reservations are accepted on a first-come, first-served basis beginning Jan. 1 each year. Additional cabins are planned for the future as time and funding permit.

Green Valley's five separate picnic areas are popular sites for family reunions, company picnics and similar outings. Two have open shelters that can be reserved in advance. All either border the lake or are within short walking distance, making it convenient to slip away for a quick try at a lunker large-mouth or a pan of fresh crappies.

Binoculars and cameras should be high on the equipment list. The park is well known for a sizable deer herd. It's not uncommon to catch a glimpse of a large buck slipping quietly through the woods or spy spotted fawns as their mothers watch from some unknown hiding place. Frequent visitors can

watch Canada goose goslings mature as they paddle single-file along the shoreline. Thousands of ducks and geese feed and rest at Green Valley during their annual migrations. Wild turkeys also inhabit the park, along with badgers, coyotes, fox and numerous other species common to southern Iowa. The park serves as a refuge for wildlife, since hunting is not allowed.

The winter of 1999-2000 saw major habitat improvements to the lake. The water level was lowered to build a new fishing jetty. Stake beds were built in several locations, and more than 600 cedar trees were anchored to the lake bed to provide additional fish habitat. More than 4,000 feet of shore line was riprapped to protect against erosion from wind and boating

activities. Future improvements include a new modern restroom in the campground and renovation of the beach facilities.

Those who don't like to fish, water ski or view wildlife can sample the area's numerous other attractions. Mt. Pisgah, an early Mormon village, is located 15 miles to the east, and the trail the travelers established on their journey west passes just north of the park.

Creston received its name when surveyors for the B & M railroad realized the site was the high point or "crest" of the Burlington line between the Mississippi and Missouri rivers. The company chose the location as its division point, which led to the construction of railroad facilities and the eventual establishment of Creston. An



Mike McGhee

Stake beds were installed and more than 600 cedar trees added to the lake bed recently to create additional fish habitat.

Amtrak station exists in Creston today, along with an impressive three story restored railroad station.

Creston also boasts a historic village, McKinley Park and lake, Summit Lake, two golf

courses, numerous restaurants and motels and more than 8,000 friendly residents.

Don't overlook Green Valley when planning your next fishing or camping trip. Join the other 100,000 plus visitors who

no longer need to ask "where is Green Valley State Park?"

Mike Schrader is the park manager at Green Valley.

GREEN VALLEY AT A GLANCE

GENERAL INFORMATION: Approximately 1,000 acres.

LOCATION: Two and one-half miles northwest of Creston on Iowa Highway 186.

FISHING: 390-acre artificial lake including largemouth bass, crappies, channel catfish, bluegills, bullheads and carp; 22-inch minimum length limit on bass; several fishing jetties and two handicapped-accessible fishing piers; modern fish cleaning stations in the campground and near the beach.

CAMPING: 145 sites (85 with electric); modern shower and restroom facilities; playground; trailer dump station.

TRAILS: 12-mile multiuse trail.

CABIN RENTAL: Two rustic, pine cabins available for rent. Cabins have electricity, covered porch, heating, air conditioning and basic furnishings. Visitors must provide bedding, towels and cooking utensils. Located near shower and restroom facilities.

PICNICKING: Popular family picnic spot; open shelters available for rent.

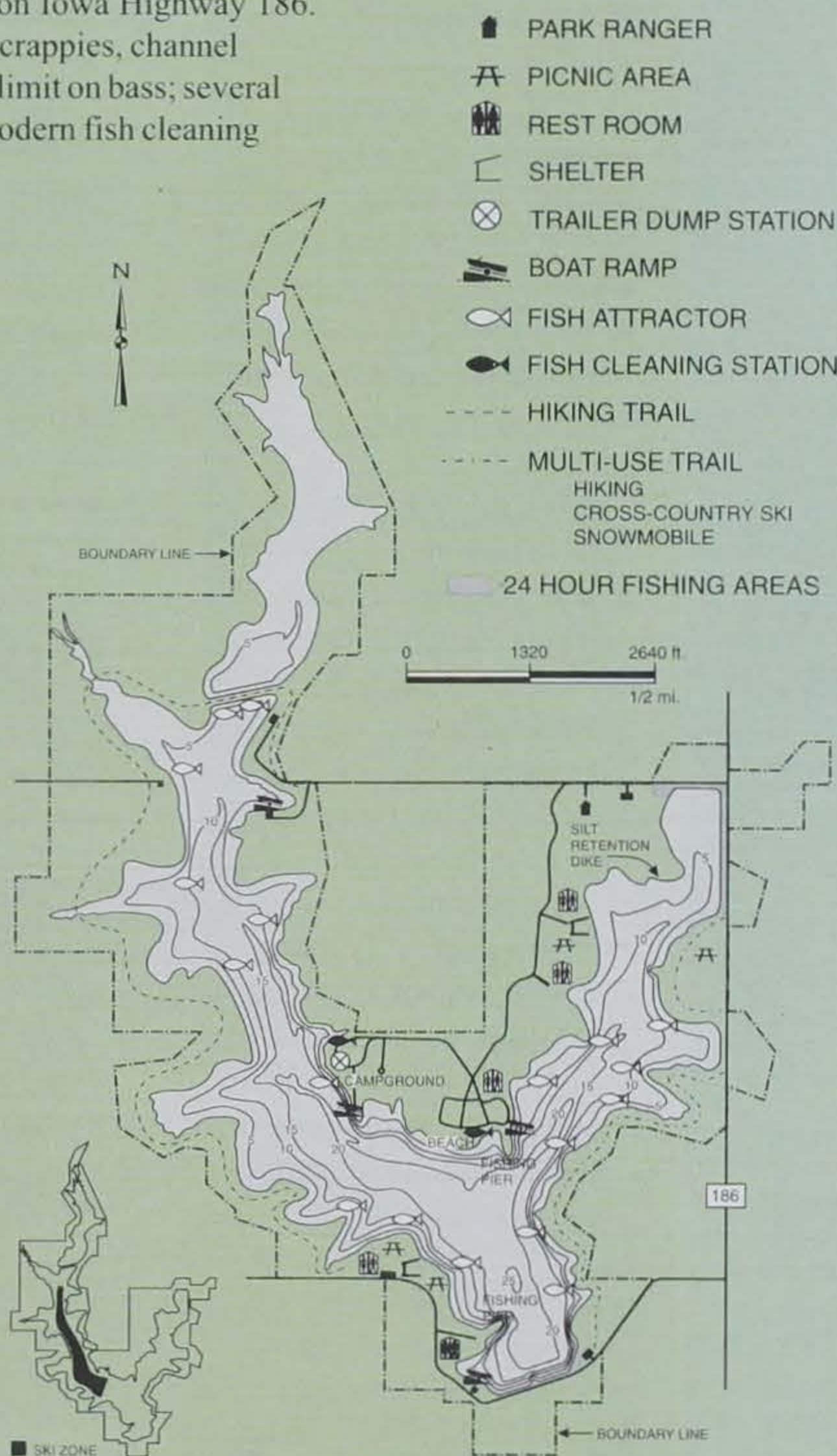
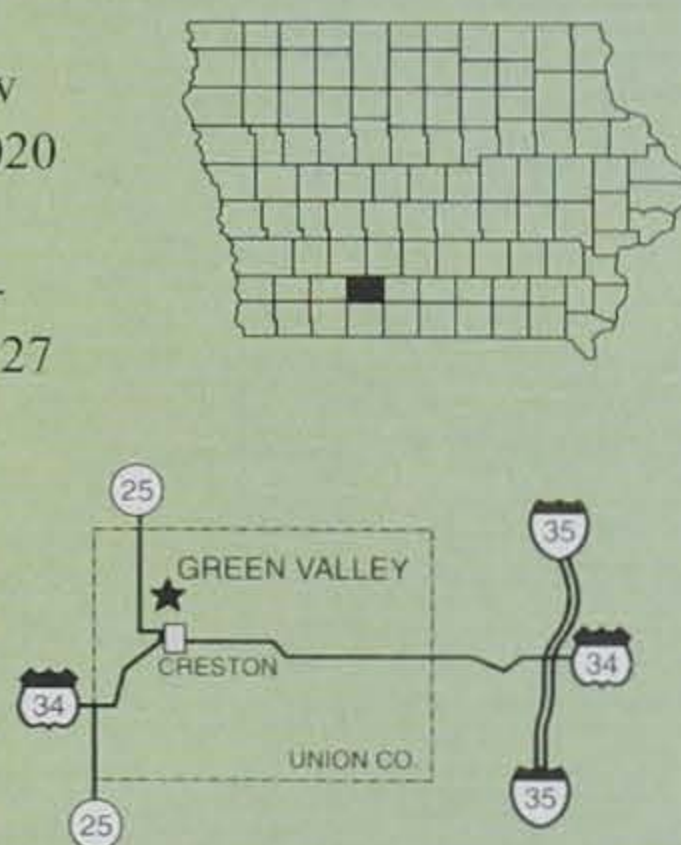
SWIMMING: Popular beach spot.

BOATING: Water skiing allowed in specified area; boats must operate at no wake speed when outside ski area. No boats are allowed within 100 feet of shore at speeds greater than five mph.

CONCESSIONS: Cabin and open shelter rental available through park ranger.

FUN FACTS: First state-owned artificial lake to allow water skiing; the dam is 1,020 feet long, 33 feet high and 350 wide at the base. Maximum depth of the lake was 27 feet when built, but siltation has reduced it to approximately 23 to 24 feet.

CONTACT:
641-782-5131.



CONSERVATION 101



Voluntary Program to Curb Exhaust

How to Report, Diagnose and Repair Smoking Tailpipes

Article by Brian Button and Jason Foley

A thick pall of exhaust permeates the air with the lingering taste and scent of metals and burned oil. Yuck! Until now, Iowans tired of smelling and breathing unhealthy car and truck exhaust had no recourse, but now a new program allows excessively smoking tailpipes to be reported to help clean the heaviest emitters on our roads.

The Smoking Tailpipe Reporting Program is designed to help improve air quality by allowing citizens to identify vehicles with excessive emissions. Citizens can report such vehicles by calling toll-free, 1-866-TAILPIPE. Callers should provide the license number at a minimum. Once reported, the vehicle owner is sent educational materials to help them understand the benefits of good vehicle care such as fuel economy and engine longevity and then make an informed choice about repairs.

"This is purely informational and voluntary, but programs in other states show about half of reported vehicle owners will take action to reduce their emissions," said Sheri Walz,

who oversees the DNR effort. "We hope Iowans can match that level of action." She said when owners learn that smoke can be unburned fuel or that it signals something is mechanically wrong, some decide to repair sooner than later, especially if delays can result in more costly repairs or engine damage.

The effort can significantly improve air quality as a large share of emissions come from a small percent of vehicles — those emitting dense, visible smoke. Some of these poorly maintained vehicles can equal the emissions of up to 30 properly functioning cars or trucks, exposing people to concentrated exhaust levels.

By reducing the numbers of smoking tailpipes, one step will be taken in the ongoing challenge of maintaining clean air in Iowa. More and more state data shows that cars, trucks and other mobile sources emit about half of all toxic chemicals and a higher percent of smog-forming emissions in Iowa.

Several million registered vehicles *do* play a significant role in affecting our air quality.

And with the help of eagle-eyed citizens who can spot a

smoking tailpipe a mile away, there could be many reports each year to reduce the equivalent of thousands of vehicles' worth of exhaust from the air.

How To Report A Smoking Vehicle

If you spot a smoking tailpipe while driving, pull over at a safe location and write down the Iowa license number. Also the date, time, location, and if you can, the make and model, then call toll-free 1-866-TAILPIPE. Or have a passenger note the information or use a cell phone. Above all, ensure safe driving habits by making reports only when safe and convenient.

Brian Button is an air quality information specialist for the department in Des Moines. Jason Foley is an arts graduate from Grand View College.

For more details about the Smoking Tailpipe Program, call Sheri Walz at 515-281-4927. To report a smoking tailpipe, call toll free 1-866-TAILPIPE.

Gasoline Engines

Visual Signs	Diagnosis	Probable Causes
White Smoke	Low engine temperature (usually occurs during engine start-up)	*No repair needed
	Coolant or water leaking into combustion chamber	*Bad head gasket *Cracked block or cylinder head
Blue Smoke	Engine oil being burned	*Oil leaking into combustion chamber *Worn piston rings, valves, or cylinders *Bad exhaust manifold *Bad head gasket
Black or Grey Smoke	Incomplete fuel combustion	*Cold engine (no repair needed) *Clogged air filter *Carburetor, choke, fuel injection, or emission system malfunction *Ignition timing off *Low compression due to engine wear

Diesel Engines (Must smoke for more than 5 seconds)

White Smoke	Low engine temperature (usually occurs during engine start-up)	*No repair needed
	Improper air/fuel mixture	*Faulty fuel injection system *Incorrect fuel injection/valve timing *Engine overheating *Faulty fuel pump/or injection pump
Blue Smoke	Engine oil being burned	*Excess engine oil (level higher than normal) *Worn piston rings, valves, or cylinders
Black or Grey Smoke	Incomplete fuel combustion	*Damaged air filter *Faulty fuel injection system *Clogged air filter *Wrong grade of fuel *Incorrect fuel injection pump timing *Engine overheating *Low compression ratio

How To Diagnose Smoke

White, blue, gray or black smoke can help indicate different mechanical problems and solutions. Some do-it-yourself projects such as changing the air filter can remedy a smoking tailpipe, but for most people, service from a qualified mechanic is the best option. Refer to the chart for more details.

DID YOU KNOW?

Mobile sources such as cars, trucks, motorcycles and other equipment emit about half of all toxins into Iowa's air and even more smog forming gases!



Jason Foley

KIDS CORNER

Fish Find

Using the words below, complete the following sentences. Use the boxed letters to discover the hidden fish.

LICENSE

BASS

LITTER

PLUG

PLAY

RULES

STANDING

CAREFUL

☐ _____ sometimes hide in weeds.

☐ _____ can harm or kill fish.

All anglers should know their state's fishing _____ and regulations

You should be _____ with hooks because hooks are sharp.

Attach a casting _____ to your line when practicing casting.

Never cast when someone is _____ behind you.

To _____ a fish, bring your rod tip up, then lower it back down as you reel in the line.

Anglers should carry their current _____ when fishing.

HIDDEN FISH: _____

Fish Find Answers: Bass, Litter, Rules, License, Plug, Standing, Play, Careful, Bluegill

WORD FIND

Find the words in the puzzle below and use them to finish the sentences at the right.

O	P	N	O	I	S	S	I	M	R	E	P
S	H	W	O	N	T	Z	E	D	P	U	K
G	S	G	N	I	N	E	V	E	T	N	S
N	A	P	G	D	T	C	E	W	A	M	B
I	N	G	O	J	I	A	R	B	L	L	I
N	S	O	Q	L	P	D	T	J	A	D	V
R	F	N	B	D	L	U	C	E	F	Y	R
O	S	U	S	M	C	Z	J	D	G	B	R
M	P	O	M	R	W	A	H	I	L	E	E
A	F	L	E	S	R	U	O	Y	P	E	V
B	P	D	E	S	P	R	I	N	G	G	O
Y	N	E	R	U	T	C	U	R	T	S	C
U	R	H	H	S	I	F	T	A	C	W	T

UNDERCUT BANK

FOOD

PERMISSION

EVENINGS

CATFISH

VEGETATION

PUBLIC

STRUCTURE

COVER

MORNINGS

YOURSELF

SPRING

Two things all fish want are _____ and _____.

Two good times to fish are _____ and _____.

A _____ is a bottom feeder.

Most fish spawn in the _____.

_____ is a calm water clue for finding fish.

A _____ is a moving water clue for finding fish.

_____ is a clue for finding fish in any water.

Land owned by all of us is _____.

Always ask _____ before fishing on private land.

Treat all land like it belongs to _____.

Match The Fish To Its Habitat



Yellow Perch

1. Live in weedy, shallow areas of warm-water lakes and ponds.

2. Found with the greatest abundance in natural lakes.

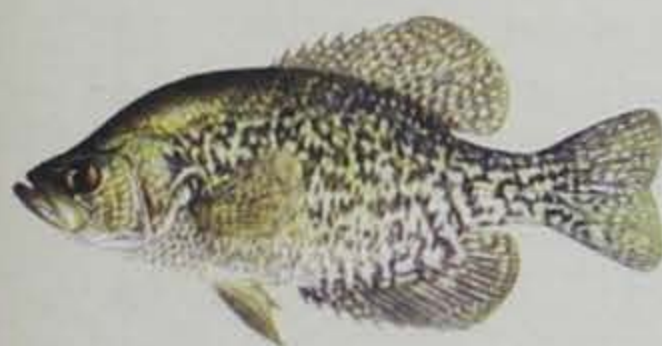
3. Live in schools in open water around the edges of plants and sunken logs. They can be found in lakes and streams wherever there are lots of plants.

4. Prefer the cool, clear water of clean rivers and deeper lakes.

5. Found in streams and large lakes just off the bottom.



Channel Catfish



Black Crappie



Bluegill



Smallmouth Bass

Where do Iowa's fish live? Answers: 1. Bluegill 2. Yellow Perch 3. Black Crappie 4. Smallmouth Bass 5. Channel Catfish

Angler Challenge

Write the letter of the correct description by the word or words described.

1. ___ Baitcasting reel
2. ___ Monofilament line
3. ___ Plug
4. ___ Spoon
5. ___ Flycasting reel
6. ___ Swivels and snaps
7. ___ Jig
8. ___ Iowa Fishing Regulations
9. ___ Treble hook
10. ___ Spincasting reel

- A. Measured in pound test or breaking strength.
- B. Casting lure of wood or plastic, in the shape of natural food such as a small fish or aquatic animal.
- C. Flattened metal blade that wobbles back and forth when it is retrieved.
- D. Simplest, most trouble-free reel.
- E. Valued for accurate casting but can make a terrible tangle.
- F. Has three points.
- G. Connects line to leader.
- H. Reel's main job is to store line, not cast or retrieve it.
- I. Tells who must have a license, where fishing is permitted, and what size fish can be caught.
- J. Weighted head attached to a hook.

Angler Challenge Answers: 1-E, 2-A, 3-B, 4-C, 5-H, 6-G, 7-I, 8-I, 9-F, 10-D

CONSERVATION UPDATE



Students in the American Wilderness Leadership School will be treated to an overnight canoe trip on the Raccoon River.

Enrollment Space Remains For Outdoor School

There is still plenty of room for educators interested in attending the DNR's popular outdoor leadership training school.

The Iowa American Wilderness Leadership School (AWLS) II will be held July 30 through Aug. 3. It is designed to complement the AWLS I program.

Both programs are designed for educators who want to include natural resource and environmental curriculum in the classroom, but who may be lacking in outdoor skills and experience. The original AWLS program teaches aquatic study, shooting, backpacking, water testing and fishing.

AWLS II takes those teachings one step further. It offers sessions on overnight canoeing on the Raccoon River, hide tanning,

fly tying and fishing, turtle trapping, bird banding, radio telemetry and rifle and handgun shooting. A session on birds of prey will also be offered.

The training school will be held at the Springbrook Education Center near Guthrie Center. Registration for the five-day camp is \$150, which includes lodging in Springbrook's air-conditioned dorms, meals, programming and materials. There are also three graduate credits available from Drake University or staff development credit for an additional fee.

For more information call A. Jay Winter at (641) 747-8383, or e-mail ajay.winter@dnr.state.ia.us.

Grubs Found In Fish Harmless To Humans

Although anglers may discard fish containing grubs, if the fish is cooked properly or the grubs removed, the meat is harmless to humans.

"Some people do not like the idea of having grubs in the fish they are planning to eat," says Andy Moore, a fisheries research biologist at the DNR's Rathbun hatchery. "If the fish do not have many grubs in them, anglers can simply cut them out. But if the fish are cooked properly, they don't have anything to worry about."

Moore recommends cooking the meat thoroughly until it flakes easily. That will kill any parasite or bacteria in the fish.

The more common parasites anglers encounter are the yellow grub and the black grub.

Yellow grubs are most commonly found in bullheads, largemouth bass and other sunfish, although they can infest all fish species. Humans are not a final host and infected fish are safe to eat. The parasite can be removed from the flesh if they are few in number, or a thorough cooking will kill the organism and render the flesh fit for eating.

Black grubs, sometimes called "pepper grubs," are most common in minnows, sunfish, trout, yellow perch and northern pike. The black grub does not infect humans, and if the cysts are carefully removed or the fish properly cooked, the flesh is safe for eating.

DNR Encourages Proper Disposal of Dead Animals; Burying Is Preferred

Rising fuel costs and concerns about markets have dramatically increased the costs of dead animal disposal in some parts of Iowa, according to Lyle Asell, special assistant to the DNR director.

"I suspect that means that more livestock producers than normal are burying their dead animals on the farm," added Asell.

"If you have the equipment, burial is by far the best alternative for disposal," said Julie Nelson, an

environmental specialist at the DNR Des Moines field office.

"Composting, incineration and sometimes even landfills are other alternatives, but be sure to check with landfills ahead of time, since

not all landfills accept animal carcasses."

Nelson recommends burying

for on-farm disposal of dead animals," said Wayne Gieselmann, coordinator of the DNR animal feeding operations program.

"Producers should know that all animals must be buried where they originate, not on rented ground, and there is a limit on the number of animals that can be buried," said Gieselmann.

The limit is 44 swine, seven cattle, 73 sheep or lambs, 400 poultry carcasses per acre per year. Animals that die within two months of birth may be

buried without regard to number.

State rules require that dead animals be disposed of within 24 hours of the death. Contact your local DNR environmental protection field office for assistance.

Burying Dead Animals

Burying is the best alternative for disposing of dead livestock and other animals. When burying, the following rules must be followed:

- burial must be at least 100 feet from a private well, 200 feet from a public well, 50 feet from an adjacent property line, 500 feet from a residence and more than 100 feet from a stream, lake or pond.

- burial cannot be in a wetland, floodplain or shoreline area.

- animals must be covered immediately with six inches of soil and finally covered with a minimum of 30 inches of soil.

animals on ridge tops or high spots, avoiding areas where the water table is high or the slopes are steep.

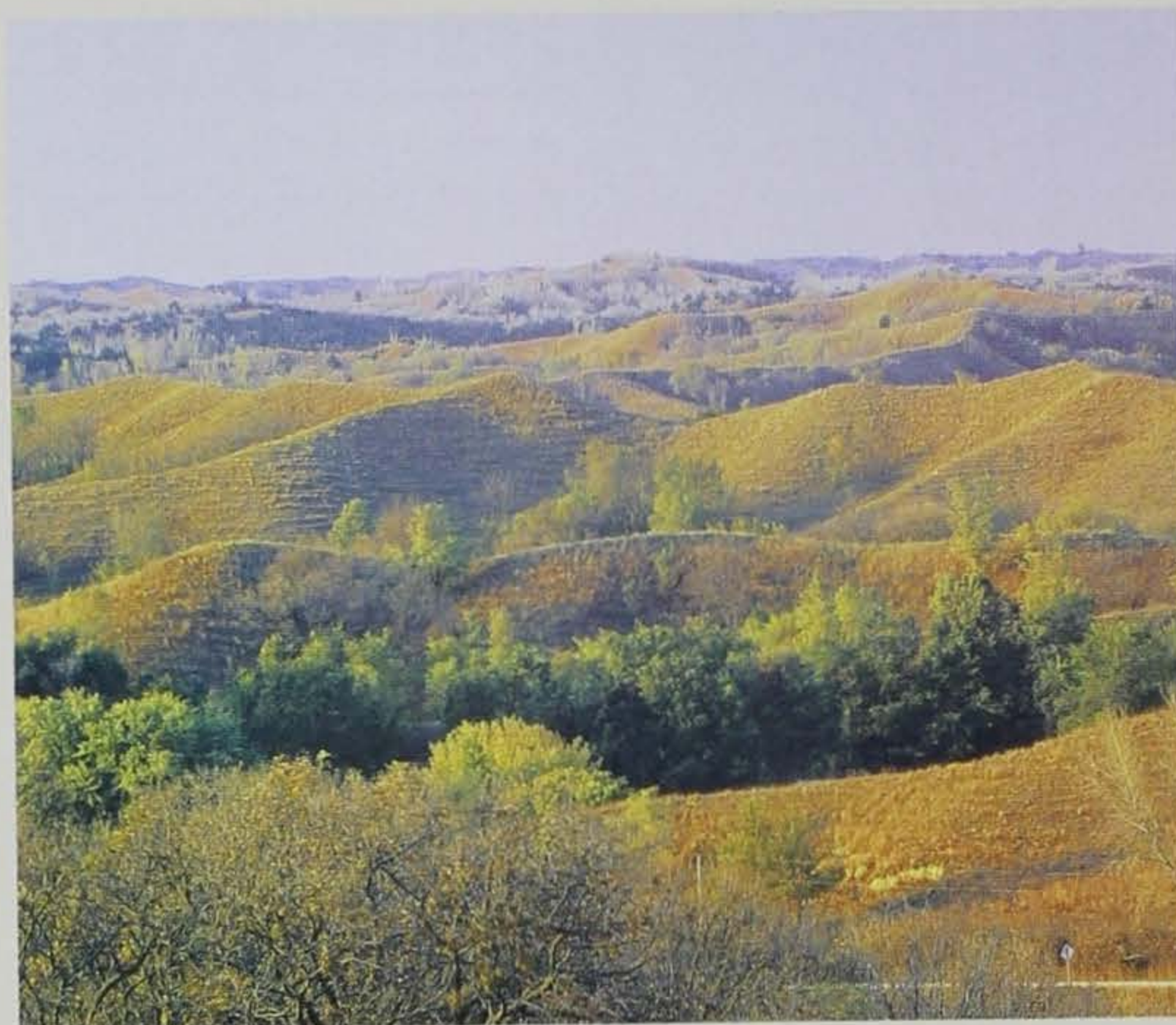
"Livestock producers need to follow proper disposal techniques

Iowa Company Donates Boat Docks At Lake Anita

Connect-A-Dock Inc., a subsidiary of Schafer Systems Inc. of Adair, recently donated four boat docks to the Lake Anita State Park marina. The company donated the docks after learning of park staff wishes to upgrade the marina to better serve boaters. The four modular polyethylene floating docks are valued at \$4,000.



CONSERVATION UPDATE



The Loess Hills in western Iowa

Loess Hills Exhibit on Display At Historical Building

A new traveling exhibit on the Loess Hills of western Iowa will open at the State Historical Building in Des Moines, July 9.

"Skyscapes and Landscapes: The Ever-Changing Loess Hills, Those Fragile Giants of Western Iowa" offers a unique visual interpretation of the future of the Loess Hills. Artist renditions demonstrate the natural beauty of the Loess Hills, the uniqueness of the cultural resources and the preservation needs of the area.

The exhibit will be on display through Sept. 1 and will feature artwork by Keith Achepohl, Randy Becker, Gary Bowling, Anne Burkholder, Richard Colburn, Dennis Dykema, Douglas A. Eckheart, Richard Left, Bobbie McKibbin, Elizabeth Miller, Concetta Morales, Jo

Myers-Walker, John Preston, Doug Shelton and David West.

The exhibit has been organized by the Moorhead Cultural Center of the Loess Hills, with assistance by Brunnier Art Museum at Iowa State University. Funding has been provided in part through grants from the Iowa Arts Council, and Gannett Foundation/*The Des Moines Register*.

The State Historical Building is located at 600 E. Locust in Des Moines. The museum is open Tuesdays through Saturdays, 9 a.m. to 4:30 p.m. and Sundays, noon to 4:30 p.m. During July and August, the museum is also open on Mondays from 9 a.m. to 4:30 p.m. Admission and parking are free. For more information, call (515) 281-6412.

Volunteers Conference Set For Nov. 16-17

Volunteers interested in preserving and protecting Iowa's natural resources should mark their calendars for the Volunteers in Natural Resources Conference Nov. 16-17 in Des Moines.

The conference will recognize volunteers for their commitment to preserving and improving Iowa's natural resources. Workshops will also be held on environmental ethics and policies, water-quality issues and creating sustainable "friends" groups.

The conference will be held at the Hotel Ft. Des Moines. Sponsored by the DNR's Keepers of the Land Volunteer Program, IOWATER Volunteer Water Quality Monitoring Program and the Iowa Academy of Science, it is expected to be an annual event.

For more information, contact Stefanie Forret at (515) 281-3150 or by e-mail at stefanie.forret@dnr.state.ia.us.

Record Spring Turkey Harvest Expected

Although harvest figures have not yet been tabulated, by all accounts the 2001 spring turkey season was excellent.

"We have an excellent population of turkeys statewide and our preliminary information is telling us that this year, we will probably set a new record for the number of turkeys harvested," said Richard Bishop, chief of the DNR's wildlife bureau.

Volunteering Today For A Better Iowa Tomorrow

Des Moines Scout Helps Reforest Local School

Thanks to the dedication and coordination of a Des Moines Eagle Scout, Roosevelt High School in Des Moines is once again teeming with trees.

Peter Wolf chose to reforest Roosevelt school grounds as his Eagle Scout community service project. By the time he was done, he had inventoried, designed and planted trees on the grounds of the school.

To successfully reforest an area, the youngster had to first learn to identify trees. He then surveyed the school grounds, developed a forest management plan and presented his plan to the school principal. After receiving permission from the Des Moines School District, Wolf went to work. With the help of the DNR, he raised more than \$1,800 during the spring and summer of 2000 to fund the project. He also arranged deals with local nurseries for the trees.

After selecting sites and checking with the local utilities, Wolf and his fellow scouts planted 19 trees. His family also pitched in, spending their nights and weekends watering the new trees during the unforgiving August heat. The hard work was paying off.

Then, with the project completed, disaster struck. Vandals broke the tops off 11 of the newly planted trees. Wolf contacted

the local news media. When the public learned of the misfortune, they responded. By October 2000, enough donations had been raised to replace the trees.

Through hard work and determination, Wolf successfully reforested the school grounds. Future Roosevelt students will be able to enjoy the product of the Eagle Scout's volunteer efforts.



Peter Wolf, left with John Walkowiak, bureau chief of the DNR's Forests and Prairies Division

Upcoming NRC and EPC Meetings

The dates and locations have been set for the following meetings of the Natural Resource Commission and Environmental Protection Commission of the Iowa Department of Natural Resources.

Agendas are set approximately 10 days prior to the scheduled meeting date. For additional information, contact the Iowa Department of Natural Resources, Wallace State Office Building, 502 E. 9th St., Des Moines, Iowa 50319-0034.

Natural Resource Commission:

- July 12
No meeting.
Teleconference if necessary.
- August 9
Gull Point State Park
- September 13
Davenport
- October 11
Keosauqua
- November 8
Warren County
Conservation Board

Environmental Protection Commission:

- July 16
Des Moines
- August 20
Des Moines
- September 17
Des Moines
- October 15
Des Moines
- November 19
Des Moines

WARDEN'S DIARY



By Chuck Humeston

Recently I returned from visiting my new granddaughter. She isn't my first grandchild. Madelyn joins her sister, Katelyn, who turned 2 in February.

Like her sister and her mother (my daughter), she is particularly beautiful. But then I might be just a little prejudiced. And by the time you read this another grandchild should be here from my expecting daughter in Colorado.

As I held her for the first time, thoughts flooded through my head. I looked at her and thought, "What a miracle. Surely this is God's proof He holds out hope for all of us." But strangely, I thought of my grandfather, too and of all things, fishing. When I think of Grandpa Humeston, I recall three vivid memories.

I remember a hard-working, gentle man dressed in a flannel shirt and dark gray work pants. I remember a warm smile, and those big hands holding me in his lap while I drank a bottle of Dodger Cola. I remember his voice as he read to me between sips.

The second memory is being at a lake about a mile north of where I grew up. I could still take you to the exact spot, because many times

Grandpas, Fishing and Baseball

in my life I have gone back to look out over the water and remember him and that day.

I was little. Grandpa and I were fishing along a shoreline rippapped with big limestones. I remember it being late in the afternoon. He was wearing a gray baseball cap. I remember the metal tacklebox. He had a fiberglass rod with a cork handle and a stainless steel reel seat. He had an open face baitcasting reel with black nylon line. I don't know why I remember such details.

I'm sure he didn't plan on catching many fish with me along, so why did he take me? I did my share of stumbling along the rocks, and invariably, tossing one into the water. I remember talking with him, about what I don't remember. Probably just the things grandpas and grandsons talk about.

I understand now that catching fish wasn't the main purpose. It doesn't have to be. That's what's great about fishing. It's like a conversation I had with my brother last week. We were talking about sports, Hawkeye sports as usual, odd given the fact he has a masters from ISU. The subject turned to baseball. I mentioned they should institute something in baseball similar to the shot clock in basketball to speed up the game. He told me I didn't understand baseball.

"It doesn't matter what's

going on out on the field," he told me. "It's like fishing. It just matters that you're there." How true. That's probably how it was for grandpa that day. It just mattered that we were together.

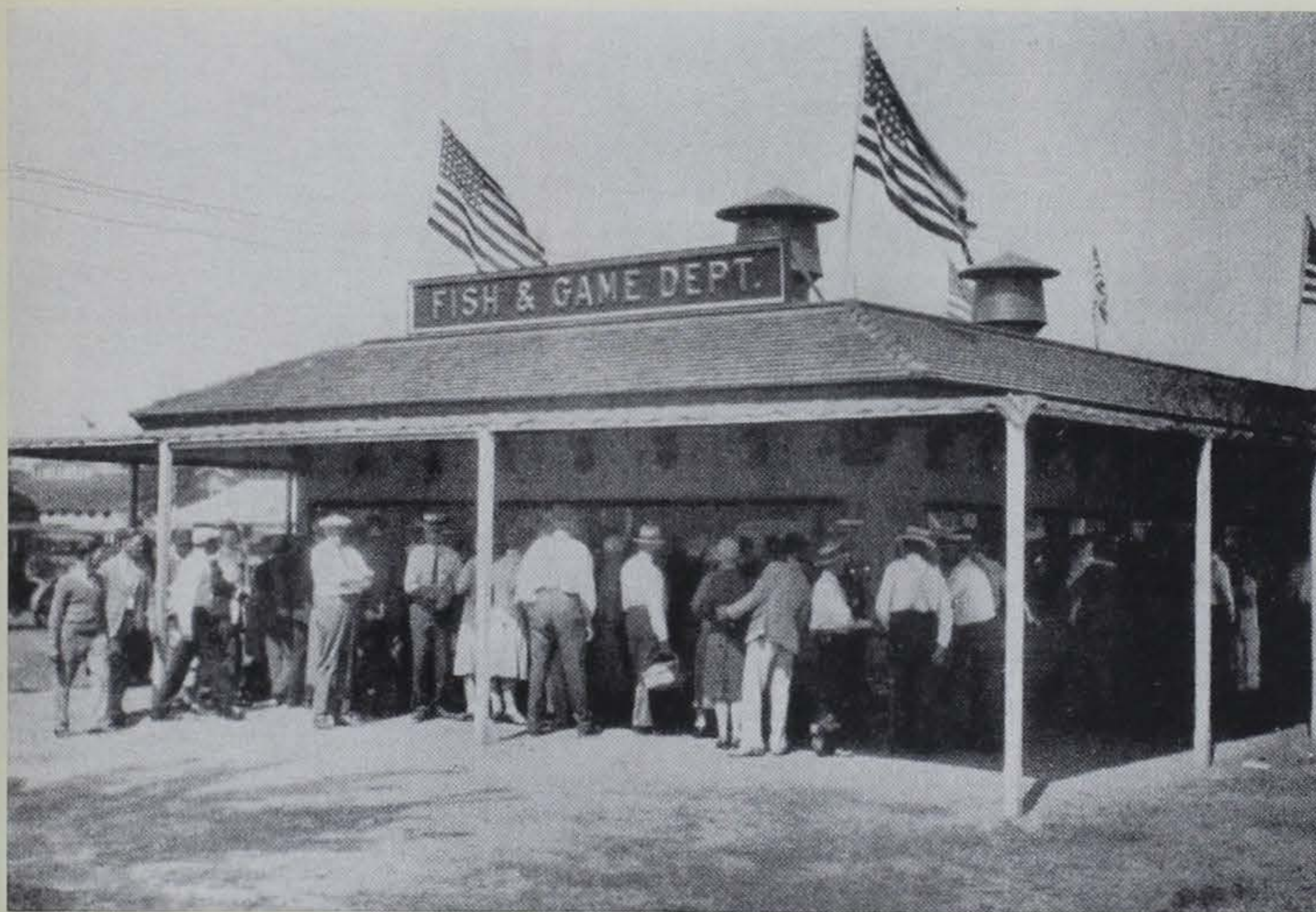
My third memory is riding in a car with my mom driving. Grandpa was in the front seat. He was dressed in a bathrobe over pajamas that I thought was unusual. The smile and the warmth were still there. But something was wrong that I couldn't get figured out. We drove to the building that I recognized as the hospital. Mom and Grandpa got out of the car while I stayed in it. His steps seemed so slow, and I couldn't understand why he seemed to be bent over a little. He got to the door, and he stopped. He turned, and our eyes locked. We looked at each other for a long while. Then he smiled, turned slowly, and walked through the door as it shut behind him. To this day, I think he knew he would not see me again. He died in the hospital.

The story my Dad always told me, to help me understand the cycle of life and that life goes on, was after my Grandpa died, my Dad walked out of his room, and heard the sound of a newborn baby crying.

And that brings me to today. I hear you crying Maddy. I see your pigtails bouncing Katy. I hear your voice Grandpa. I understand. I can't wait to take them fishing.

PARTING SHOT

Meet me at the fair . . .



DNR photo

For close to 100 years, the Department of Natural Resources has been present at the Iowa State Fair. The aquarium above was completed in 1921, replacing the stock tanks originally used to display Iowa fish. Today, the same aquarium can be found within the DNR building (completed in 1929) located at the west end of the Grand Concourse. Visit the DNR at this year's Iowa State Fair, August 9-19 — see the historic aquarium and the fish it holds, and learn more about Iowa's natural resources. We look forward to seeing you.

